

Board of Directors Meeting Agenda

Date: September 16, 2021
Time: 5:30 p.m.
Location: Virtual Meeting (online)

AGENDA

SACRAMENTO MUNICIPAL UTILITY DISTRICT BOARD OF DIRECTORS MEETING

In accordance with the Governor's Executive Order N-29-20 and the Emergency Board Meeting Procedures adopted by the SMUD Board of Directors, the regular Board meeting and other public meetings are closed to the public to align with state, local, and federal guidelines and social distancing recommendations for the containment of the coronavirus.

Live video streams and indexed archives of meetings are available at:
http://smud.granicus.com/ViewPublisher.php?view_id=16

Members of the public may register to provide verbal comments at an upcoming Board or Committee meeting by e-mailing a request to speak to PublicComment@smud.org. Please include the date of the meeting, name, and topic or agenda item the requestor wishes to speak on. The request may also be submitted while the meeting is in progress during the standard time for the agenda item or topic. **Pre-registration is strongly encouraged by no later than 3:00 p.m. on the day of the meeting.**

Members of the public may provide written public comments on a specific agenda item or on items not on the agenda (general public comment) by submitting comments via e-mail. Comments may be submitted to PublicComment@smud.org and will be placed into the record of the meeting.

Members of the public that are listening to or watching the live stream of a Board meeting and wish to submit written comments on a specific agenda item as it is being heard may submit their comments, limited to 250 words or less, to PublicComment@smud.org, noting the agenda item number in the subject line. The Board President may read comments for items on the agenda into the record, in her discretion, based upon such factors as the length of the agenda or the number of e-mail comments received. General public comment for items not on the agenda will not be read into the record but will be provided to the Board and placed into the record of the Board meeting if it is received within two hours after the meeting ends.

September 16, 2021 – 5:30 p.m.

Zoom Webinar Link: [Join SMUD Board of Directors Meeting Here](#)

Webinar/Meeting ID: 161 013 3872

Passcode: 489111

Phone Dial-in Number: 1-669-254-5252 or 1-833-568-8864 (Toll Free)

Call to Order.

a. Roll Call.

1. Approval of the Agenda.

2. Committee Chair Reports.

- a. Committee Chair report of September 7, 2021, Strategic Development Committee
- b. Committee Chair report of September 8, 2021, Policy Committee
- c. Committee Chair report of September 15, 2021, Energy Resources & Customer Services Committee
- d. Committee Chair report of September 15, 2021, Finance and Audit Committee

Items 6 through 8 were reviewed by the September 8, 2021, Policy Committee. Item 9 was reviewed by the September 15, 2021, Energy Resources & Customer Services Committee.

Comments from the public are welcome when these agenda items are called.

Consent Calendar:

- 3. Approve Board member compensation for service rendered at the request of the Board (pursuant to Resolution 18-12-15) for the period of August 16, 2021, through September 15, 2021.
- 4. Approval of the minutes of the regular meeting of August 19, 2021.
- 5. Approval of the minutes of the special meeting of August 31, 2021.
- 6. Accept the monitoring report for **Strategic Direction SD-7, Environmental Leadership. Policy Committee 9/8. (Frankie McDermott)**
- 7. Accept the monitoring report for **Strategic Direction SD-9, Resource Planning. Policy Committee 9/8. (Scott Martin)**
- 8. Accept the monitoring report for **Strategic Direction SD-10, Innovation. Policy Committee 9/8. (Scott Martin)**
- 9. Adopt SMUD's **Utility Security Plan. Energy Resources & Customer Services Committee 9/15. (Jennifer Davidson)**

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Discussion Calendar:

- 10. Discussion and possible approval of draft rate resolutions introduced at the August 31, 2021, Board of Directors meeting to make changes to SMUD's Rates, Rules and Regulations proposed by:
 - a. Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report") [two resolutions]; and
 - b. Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report") [one resolution].

Presenter: Alcides Hernandez

Public Comment:

11. Items not on the agenda.

Board and CEO Reports:

12. Directors' Reports.
13. President's Report.
14. CEO's Report.
 - a. Board Video re: Clean PowerCity TikTok Challenge

Summary of Board Direction

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Board Committee Meetings and Special Meetings of the Board of Directors are held at the SMUD Headquarters Building, 6201 S Street, Sacramento

The SMUD Board of Directors is currently operating under Emergency Board Meeting Procedures. In response to local, state, and federal directives, the following meetings may be held virtually (online).

September 15, 2021	Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
September 15, 2021	Finance and Audit Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	Immediately following the Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting scheduled to begin at 5:30 p.m.
October 12, 2021	Strategic Development Committee and Special SMUD Board of Directors Meeting	TBD	5:30 p.m.
October 13, 2021	Policy Committee and Special SMUD Board of Directors Meeting	TBD	5:30 p.m.

October 19, 2021	Finance and Audit Committee and Special SMUD Board of Directors Meeting	TBD	5:30 p.m.
October 20, 2021	Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting	TBD	5:30 p.m.

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Regular Meetings of the Board of Directors are held at the SMUD Headquarters Building, 6201 S Street, Sacramento

The SMUD Board of Directors is currently operating under Emergency Board Meeting Procedures. In response to local, state, and federal directives, the following meeting may be held virtually (online).

October 21, 2021	TBD	5:30 p.m.
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Pursuant to Resolution No. 20-06-08 adopted on June 18, 2020, Emergency Board Meeting Procedures are in effect:

Members of the public may make either a general public comment or comment on a specific agenda item by submitting comments via email. Comments may be submitted to PublicComment@smud.org. Comments will be provided to the Board and placed into the record of the Board meeting if it is received within two hours after the meeting ends.

Members of the public that are listening or watching the live stream of a Board meeting and wish to comment on a specific agenda item as it is being heard, may submit their comments, limited to 250 words or less, to PublicComment@smud.org. The Board President may read the comments into the record, in her discretion, based upon such factors as the length of the agenda, the number of email comments received, and whether the Board is in danger of losing a quorum. Comments will be provided to the Board and placed into the record of the Board meeting if it is received within two hours after the meeting ends.

Members of the public may register to provide verbal comments at an upcoming Board or Committee meeting by emailing a request to speak to PublicComment@smud.org. Please include the date of the meeting, name, and topic or agenda item the requestor wishes to speak on. The request may also be submitted while the meeting is in progress during the standard time for the agenda item or topic. Pre-registration is strongly encouraged by no later than 3:00 p.m. on the day of the meeting.

ADA Accessibility Procedures: Upon request, SMUD will generally provide appropriate aids and services leading to effective communication for qualified persons with disabilities so that they can participate equally in this virtual meeting. If you need a reasonable auxiliary aid or service for effective communication to participate, please email Toni.Stelling@smud.org, or contact by phone at (916) 732-7143, no later than 48 hours before this virtual meeting.

RESOLUTION NO. _____

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

That this Board hereby approves Board member compensation for service rendered at the request of the Board (pursuant to Resolution 18-12-15) for the period of August 16, 2021, through September 15, 2021.

Sacramento, California

August 19, 2021

The Board of Directors of the Sacramento Municipal Utility District met in regular session via virtual meeting (online) at 5:30 p.m.

Roll Call:

Presiding: President Bui-Thompson

Present: Directors Rose, Fishman, Herber, Kerth,
Tamayo, and Sanborn

Present also were Gary King, acting Chief Executive Officer and General Manager; Laura Lewis, Chief Legal & Government Affairs Officer and General Counsel and Secretary, and members of SMUD's executive management; and SMUD employees and visitors.

Director Kerth shared the environmental tip.

President Bui-Thompson called for approval of the agenda.

Director Kerth moved for approval of the agenda, Director Herber seconded, and the agenda was unanimously approved.

Director Herber, Vice Chair, presented the report on the Strategic Development Committee meeting held on August 10, 2021.

Director Fishman, Chair, presented the report on the Strategic Development Committee meeting held on August 3, 2021.

Director Sanborn, Chair, presented the report on the Policy Committee meeting held on August 11, 2021.

Director Herber, Chair, presented the report on the Finance and Audit Committee meeting held on August 17, 2021.

Vice President Rose, Chair, presented the report on the Energy Resources & Customer Services Committee meeting held on August 18, 2021.

President Bui-Thompson then called for public comment for items on the agenda, but none were forthcoming.

President Bui-Thompson then addressed the consent calendar consisting of Items 3 through 8. Director Tamayo moved for approval of the

consent calendar, Director Fishman seconded, and Resolution Nos. 21-08-01 through 21-08-04 were unanimously approved.

RESOLUTION NO. 21-08-01

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

That this Board hereby approves Board member compensation for service rendered at the request of the Board (pursuant to Resolution 18-12-15) for the period of July 16, 2021, through August 15, 2021.

Approved: August 19, 2021

INTRODUCED: DIRECTOR TAMAYO				
SECONDED: DIRECTOR FISHMAN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE	X			
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

RESOLUTION NO. 21-08-02

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

This Board accepts the monitoring report for **Strategic Direction SD-5, Customer Relations**, substantially in the form set forth in **Attachment A** hereto and made a part hereof.

Approved: August 19, 2021

INTRODUCED: DIRECTOR TAMAYO				
SECONDED: DIRECTOR FISHMAN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE	X			
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: August 3, 2021

FROM: Claire Rogers *CR 8/3/21*

**SUBJECT: Audit Report No. 28007407
Board Monitoring Report; SD-5: Customer Relations**

Audit and Quality Services (AQS) received the SD-5 *Customer Relations* 2020 Annual Board Monitoring Report and performed the following:

- A review of the information presented in the report to determine the possible existence of material misstatements;
- Interviews with report contributors and verification of the methodology used to prepare the monitoring report; and
- Validation of the reasonableness of a selection of the report's statements and assertions.

During the review, nothing came to AQS' attention that would suggest the SD Board Monitoring report did not fairly represent the source data available at the time of the review.

CC:

Paul Lau

Board Monitoring Report 2020

SD-5, Customer Relations



1) Background

Strategic Direction 5 states that:

Maintaining a high level of customer relations is a core value of SMUD. Additionally, the Board recognizes that the customer satisfaction target of 95 percent with no individual component measured falling below 85 percent.

In addition, the Board establishes an overall customer experience “value for what you pay” target of 70 percent by the end of 2025 and 80 percent by the end of 2030, with neither the average commercial customer score falling below 69 percent nor the average residential customer score falling below 65 percent in any year.

As part of this policy:

- a) SMUD customers shall be treated in a respectful, dignified and civil manner.
- b) SMUD shall communicate a procedure for customers who believe they have not received fair treatment from SMUD to be heard.

2) Executive summary

To ensure customers are receiving the highest quality of service, SMUD measures the satisfaction of key interactions with SMUD: Outages, Tree Trimming, Bill Inquiries, New Connections, IVR Payments, and IVR Payment Arrangements.

In addition, we measure Value for What You Pay as value drives customer loyalty. Value is defined as the trade-off between the perceived benefits a customer gets to the cost they have to pay for the benefits. Knowing what customers value allows SMUD to tailor services, products, and offerings to sustain customer relationships as the utility market evolves. SMUD is measuring customer perceived value because SMUD believes it is an effective early indicator of customer loyalty. When customers have options to choose alternatives, whether alternatives in energy, energy advisement, and other related services, we want our customers to continue choosing SMUD.

High satisfaction in these key interactions below and a high Value for What You Pay score support SMUD’s purpose and vision to act in the best interests of our customers and community.

SMUD is in compliance with the policy and has exceeded the targets set forth by the Board in all instances for SD-5.

SMUD has exceeded the target of 95% with an overall Customer Satisfaction of 97%. All four components exceeded the expectation set.

SMUD achieved a 77% overall Value for What You Pay score, with neither Residential nor Commercial falling below their prescribed floors. Deferring shut-offs and late fees during the COVID-19 pandemic, no public power safety shut-offs, and robust communication and responsiveness to customer needs all contributed to the 2020 annual VFP score surpassing target. In the near future, VFP scores are anticipated to decline due to the restart of collections and shut-offs and multiple pricing changes. Looking beyond, a continued focus on customer experience initiatives will boost customer trust in SMUD and their adoption of 2030 Decarbonization recommendations.

Metric	Status		Compliance
Customer Service Level	Overall Satisfaction	97%	Yes
	Tree Trimming	95%	
	New Connects	99%	
	Bill Inquiries	96%	
	Outage Communication	95%	
	IVR Payment	97%	
	IVR Payment Arrangement	93%	
Value for What You Pay Addendum	Overall VFP	77%	Yes
	Commercial	79%	
	Residential	75%	

Respectful Customer Treatment: Compliant

SMUD customers are treated in a respectful, dignified and civil manner. SMUD employees are trained to deliver quality customer experience through extensive, multi-channel employee competency development.

Hearing Appeal Process: Compliant

Customers are made aware of SMUD's Hearing and Appeal process through multiple channels. The back page of every paper bill describes the process. In addition, the process is described in detail on the SMUD website and is linked from the digital bill in My Account.

Link: <https://www.smud.org/assets/documents/pdf/Board-Meeting-Procedures.pdf>

Zero hearings were conducted in 2020, as staff successfully resolved all escalations within standard customer communication channels.

3) Additional supporting information

See Appendix A for supporting information.

2020 Accomplishments
1) Friendly Reminder Campaign – Over 240,000 customer touchpoints made to residential and commercial customers with unpaid SMUD bills. These touchpoints included information on billing and payment resources delivered via CSR/SAA calls, robocalls, emails, and direct mail.
2) Food Drive – In partnership with Elk Grove Food Bank, SMUD collected over a ton of food through a drive-through, touchless canned food drive which brought critical awareness and support to our community members.
3) Increased EAPR Assistance – 20k-30k customers retained their discount without reapplying, allowing ~12k customers to stay on EAPR who may have otherwise been dropped. Eligibility requirements were loosened to increase eligibility. CSR personalized outreach to over 2,900 customers around holidays.
4) EnergyHELP Donations – SMUD collected multiple generous donations totaling \$10,000 which was applied to additional assistance and income eligible arrearages.
5) 'We're Here to Help' campaign – SMUD launched a 3-phase campaign advertising our resources and efforts to support our community.
6) SAA awareness campaign – SAA's sent individualized, targeted messages to commercial customers highlighting help available from SAAs and SMUD.
7) Business reinvented - Social media campaign sharing local businesses' ingenuity coming to the aid of others.
8) Newsletter support for local business - Called upon our community to continue to support small business through both residential and commercial newsletters.
9) Virtual Meet the Buyers Expo - This annual event was offered virtually for the first time in 2020.

10) COVID-19 business resources - SMUD created an online platform of community, state and federal resources available to business customers.

11) Virtual assessments - SAAs, Energy Specialists and Energy Advisors conducted energy audits virtually giving customers a safe and convenient way to engage and thrive with SMUD during and after COVID-19. Resulting in operational efficiency and cost reduction for truck/car rolls.

Ongoing Accomplishments

12) Solar + weatherization - SMUD funded installations for 30 single family homes in partnership with Grid Alternatives.

13) Shade Trees - In partnership with Sac Tree Foundation, SMUD delivered over 9,800 trees.

14) Wattson chatbot launched - Helps customers navigate smud.org, used by 9,200 customers and counting.

15) SMUD Energy Store - SES had a record setting year with 23,000+ items sold, 53% customer awareness, \$72.5k+ donated to EnergyHELP, and free holiday lights to over 2,300 EAPR customers.

16) Launched EV Concierge Service - Offers live support, answering questions on all things EV.

17) Educational Outreach - Ten residential and two K-12 educational videos produced with 150,000+ views across all channels. Solar@Home summer camp was attended by over 280 local students.

18) Enhanced SMUD App – Improvements made to App including robust charting features, real-time payment posting, mobile alerts and increased performance and speed.

19) Digital self-service enhancements - Online automation of HomePower Repair request form, EnergyHelp Program and VIN Decoder for EV rate identification.

20) Sustainable communities resource priorities map – Drives community support to under-resourced neighborhoods.

21) Commercial rate impact tool - This tool estimates bill impacts of 8-year rate restructure for commercial customers.

22) Launched Neighborhood SolarShares - Developers and builders to secure utility-scale solar from SMUD to meet the solar mandate.

23) Solar support for our community - Provided solar installations for 4 local nonprofits.

24) Commercial MyAccount - Expanded eligibility for commercial customers to make payment arrangements in self-service channels.

25) EE Incentives - 820+ commercial customers received energy efficiency incentives.

26) Electric transportation - Incentivized the installation of 125 commercial vehicle chargers and vehicles through the commercial charging, fleet and CALeVIP programs.

27) Business guide to beneficial electrification - Overview of benefits to go electric as a business, including reducing carbon, electrification costs, incentives, steps to electrify and equipment technology descriptions.

28) SMUD business bill tips - Self-help video on smud.org/MyAdvisor addressing the most commonly asked billing questions.

Respectful Customer Treatment Supporting Information:

Virtual Classroom Training Attendees: 604

Web/ E-Learning: 406

Real Time Training – 2020 Bulletins: 134

Customer Journey Mapping and Design thinking sessions: 15

4) Challenges

Upcoming price increases, new rate structures, and resuming shut-offs and collections are likely to put downward pressure on future VFP scores and customers' positive perception of SMUD. In addition, customer needs and expectations will continue to evolve. Investing in customer experience enhancements are critical to ensure ongoing customer engagement such as EAPR and Sustainable Communities, efficient operations, and success of SMUD's 2030 Decarbonization strategy.

5) Recommendation

It is recommended that the Board accept the Monitoring Report for SD-5.

6) Appendices

Appendix A









Customer Satisfaction

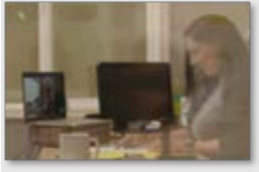


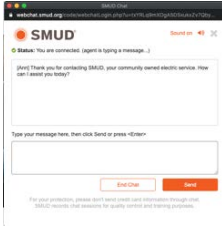
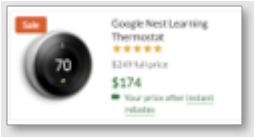




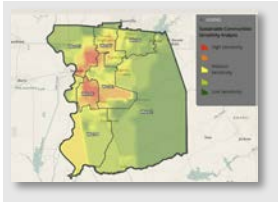
Overall Satisfaction	2020 97%	2019 97%	2018 97%
Tree Trimming	95%	95%	95%
New Connects	99%	98%	98%
Bill Inquires	96%	96%	95%
Outage	95%	96%	96%
IVR Payment	97%	96%	96%
IVR Payment Arrangement	93%	98%	98%




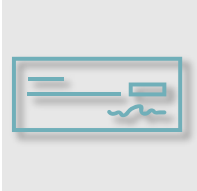



Value for What You Pay

VFP Segment Thresholds	2020 77%	2019 67%	2018 71%	2017 70%	2016 70%	2015* 65%
Commercial 69% Minimum	79%	69%	73%	72%	74%	67%
Residential 65% Minimum	75%	66%	69%	68%	66%	63%

Accomplishments

<p>1. Friendly reminder campaign</p> 	<p>2. Food drive collected 1 ton+ of food</p> 
<p>3. Increased EAPR assistance to loosen guidelines and allow more customers to stay on or join the discounted rate</p>	<p>4. EnergyHelp Donations totaling \$14k</p>
<p>5. 3-phase “We’re here” to help marketing campaign</p> 	<p>6. SAA Awareness Campaign</p> 
<p>7. Business reinvented social media campaign</p> 	<p>8. Newsletter support for local business</p> 
<p>9. Virtual meet the buyers</p> 	<p>10. Covid 19 business resources</p> 

<p>11. Virtual assessments</p> 	<p>12. Solar + weatherization</p> 
<p>13. 9.8k shade trees delivered</p> 	<p>14. Watson – live chat</p> 
<p>15. SMUD Energy Store record setting year</p> 	<p>16. Launched EV Concierge service</p> 
<p>17. Education outreach, with increased virtual options</p> 	<p>18. Enhanced SMUD app</p> 
<p>19. Digital self-service enhancements</p> 	<p>20. Sustainable Communities resource priorities map</p> 

<p>21. Commercial rate impact tool</p> 	<p>22. Launched Neighborhood SolarShares</p> 
<p>23. Solar support for community</p> 	<p>24. Commercial MyAccount</p> 
<p>25. EE incentives</p> 	<p>26. Electric transportation – 130 EVs + chargers</p> 
<p>27. Business guide to electric transportation</p> 	<p>28. SMUD business bill tips</p> 

RESOLUTION NO. 21-08-03

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

This Board accepts the monitoring report for **Strategic Direction SD-15, Outreach and Communication**, substantially in the form set forth in **Attachment B** hereto and made a part hereof.

Approved: August 19, 2021

INTRODUCED: DIRECTOR TAMAYO				
SECONDED: DIRECTOR FISHMAN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE	X			
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: August 3, 2021

FROM: Claire Rogers *CR 8/3/21*

**SUBJECT: Audit Report No. 28007341
Board Monitoring Report; SD-15: Outreach and
Communication**

Audit and Quality Services (AQS) received the SD-15 *Outreach and Communication* 2020 Annual Board Monitoring Report and performed the following:

- A review of the information presented in the report to determine the possible existence of material misstatements;
- Interviews with report contributors and verification of the methodology used to prepare the monitoring report; and
- Validation of the reasonableness of a selection of the report's statements and assertions.

During the review, nothing came to AQS' attention that would suggest the SD Board Monitoring report did not fairly represent the source data available at the time of the review.

CC:

Paul Lau

Board Monitoring Report 2020

SD-15 Board Strategic Direction on Outreach and Communication



1) Background

Strategic Direction 15 states:

Providing broad outreach and communication to SMUD's customers and the community is a key value of SMUD.

Specifically:

- a. SMUD shall provide its customers the information, education and tools they need to best manage their energy use according to their needs.
- b. SMUD will use an integrated and consistent communication strategy that recognizes the unique customer segments that SMUD serves.
- c. SMUD's communication and community outreach activities shall reflect the diversity of the communities we serve. SMUD shall use a broad mix of communication channels to reach all customer segments. This communication shall be designed to ensure that all groups are aware of SMUD's major decisions and programs.

2) Executive summary

Strategic Direction 15 requires SMUD's communication and community outreach activities to reflect the diversity of SMUD and the community we serve, using a broad mix of communication channels. In accordance, we look at the level of our marketing and outreach activities by communication channel, as well as the customer awareness of various programs and services by ethnicity.

SMUD is in compliance with SD-15 Outreach and Communication.

2020 was a year like no other. And that was reflected in our outreach and communication campaigns throughout the year. As the COVID-19 pandemic unfolded and the shelter-in-place order came in mid-March, we immediately refocused our communications and outreach strategies and implementation plans. We understood immediately this was going to have a significant impact on our customers and our community. It was important that we communicate that we were here to help, offering resources and assistance. We developed a new campaign and outreach strategy and began rolling it out within a week. Messaging evolved over time but focused on programs and resources to help customers through difficult times such as flexible

payment options, the suspension of late fees and disconnects and the expanded guidelines for the EAPR discount so more customers could qualify. Additionally, we were actively promoting our programs and services, targeted to customers most likely to benefit.

As the pandemic was impacting every aspect of everyday life for our customers, we also looked for new ways to give back in 2020. Some examples include hand sanitizer drop-off to food distribution sites, clothing drive, virtual events guide, school supply drive and food supply drive.

We could be seen or heard in 15 customer-facing communication channels, including information in as many as 10 languages. We implemented over 20 marketing campaigns and participated in 772 community events, workshops, and partnerships. Over 80% of the 772 events and partnerships were cultural, ethnic and/or special populations, including LGBTQ, low income, military, seniors, disabilities, education, environmental, health & safety and STEM. See Appendices A and B.

Our activities accounted for more than 559,798,928 customer impressions in 2020. Of these, 282,138,660 were ethnic customer impressions. Just looking at TV and radio, the average SMUD customer had the opportunity to see or hear a SMUD commercial 34 times in 2020.

We look at trends related to the overall awareness of a cross-section of SMUD's programs and services, segmented by ethnicity. The segments include Asian Pacific Islander, Latinx or Hispanic, Black and White. The programs measured are Rebates, Energy Assistance Program Rate (EAPR), Greenergy, Electric Vehicle (EV) discount rate, My Energy Tools, SMUD Energy Store, SMUD Mobile App and the TOD Rate. See charts in Appendix B.

SD Requirement	Program/initiative/policy	Purpose	Outcome	Notes
Education and tools to manage energy use	In 2020, we implemented a robust multi-channel and multi-phased communication and outreach campaign about how SMUD is here to help, which offered resources and tips for customers to manage energy use and their bills during the COVID-19 pandemic. This campaign, along with more than 20 others, promoted customer programs and services. Some of	To provide customers with the education and tools for managing their energy use and their bills, in particular in relation to the pandemic and stay-at-home orders for many customers, as well as many who may have lost jobs or were considered essential and still had to report to a	Successfully implemented campaigns that informed our customers of resources and tools available to them. Also successfully participated in over 700 community events with employees volunteering more than 16,000 hours. Awareness of most programs and tools was mostly steady from 2019 to 2020, with some increases	Three phases of the "We're here to help" campaign were implemented in 2020 to continue to keep customers informed of resources and tools available to them to help manage energy use and their bill, as well as other community resources, in particular during the pandemic.

	those included EAPR, MED Rate, My Energy Tools, EVs/Drive Electric, Go Electric rebates, SMUD Energy Store, Billing/Payment options including flexible payment arrangements, and Shade Trees.	work location.	in awareness of EAPR and self-service options. Over 80% of the 772 events and partnerships were cultural, ethnic and/or special populations, including LGBTQ, low income, military, seniors, disabilities, education, environmental, health & safety and STEM. (Appendices A, B)	
Integrated and consistent communication that recognizes unique customer segments	Implemented communications, including collateral and advertisements in as many as 10 languages and in over a dozen communication channels to ensure we reach our customers in the channel they prefer, at the time they need it and with information specifically targeted to them. We also participated in hundreds of community events to reach our customer segments.	To have consistent, integrated messages available for various customer segments, including those based on ethnicity or those who may not see our messages in mainstream communication channels.	More than 282 million ethnic customer impressions, and more than 80% of the 772 community events we participated in were cultural, ethnic and/or special populations. Special populations include arts, LGBTQ, low income, military, seniors, disabilities, education, environmental, health & safety and STEM. (see Appendices A, B).	As the pandemic was impacting every aspect of everyday life for our customers, we looked for new ways to give back in 2020, including hand sanitizer drop-off to food distribution sites, clothing drive, school supply drive, food supply drive.
Broad mix of communication channels	In 2020, we used 15 customer-facing communication channels to reach our customers, including community events, partnerships, digital, social media, broadcast and streaming media, billboards, surveys, direct mail and email. By leveraging customer data and using this broad mix of channels, we are able to reach customers in the communication channel they prefer with information that is pertinent to them. (See Appendix B)	To reach customers with our messages in the communication channels they prefer.	More than 559 million customer impressions across multiple communication channels and support of 772 community outreach events and partnerships in 2020 (see Appendices A, B).	

3) Additional supporting information for SD-15, Outreach and Communication

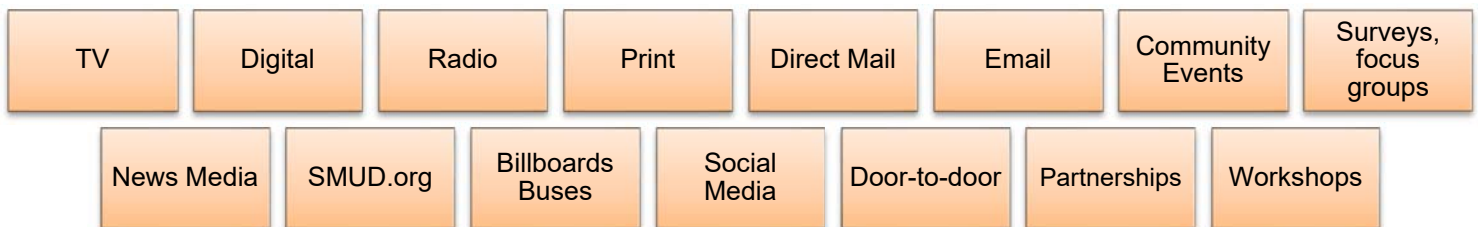
a) SMUD shall provide its customers the information, education and tools they need to best manage their energy use according to their needs.

In 2020, we developed and implemented over 20 campaigns, including:

- We're here to help/Stay well
- Bill Alerts/My Energy Tools
- Budget Billing
- Community-Owned, Not-For-Profit
- EAPR
- Economic Development
- Electric Vehicles
- EnergyHELP
- Environmental Leadership
- Go Electric rebates
- Greenenergy
- HomePower
- My Business Tools
- Paperless Billing/My Account
- Powering Futures
- Refrigerator Recycling
- Safety (Car Pole, Wildfire)
- SMUD Energy Store
- Shade Trees
- Shine Neighborhood Awards
- Time-of-Day Summer reminder

b) SMUD will use an integrated and consistent communication strategy that recognizes the unique customer segments that SMUD serves.

In 2020, our marketing and communications could be seen and heard in as many as 10 languages in 15 customer-facing channels, including:



c) SMUD's communication and community outreach activities shall reflect the diversity of SMUD. SMUD shall use a broad mix of communication channels to reach all customer segments. This communication shall be designed to ensure that all groups are aware of SMUD's major decisions and programs.

With hundreds of events and sponsorships, millions of bill inserts and emails, tens of thousands of websites and multiple social media channels where customers could see our ads, and our schedule of TV, radio, and print advertisements, it's clear that we used a broad mix of channels to reach all of our customers in the channels they prefer. This includes in-language media such as TV, radio, print, digital and customer collateral in up to 10 languages or more.

These tactics account for 559,798,928 customer impressions in 2020. Of these, 282,138,660 were ethnic impressions. Just measuring TV and radio, the average SMUD customer had the opportunity to see or hear a SMUD commercial 34 times in 2020.

- 11,553,302 bill package inserts
- 772 sponsorships & events
- 12,465,445 emails
- 416 billboards, transit boards
- 36 print publications
- 6 Social Media Channels
- 1,093,418 direct mail pieces
- 27 radio stations
- 136,903 websites & app's
- 24 broadcast & cable TV stations
- 16,784 volunteer hours
- 29 Shine awards

4) Challenges

As mentioned throughout this report, the COVID-19 pandemic presented some unique challenges related to how we communicate and reach our customers as well as the type of information and resources we are communicating.

One clear example is the cancellation of in-person events, meetings and any forums where people gather, and information can usually be shared. We were able to meet this challenge by transitioning community meetings and events to virtual formats, while also relying on targeted communication channels such as email, direct mail and social media to communicate important information.

This is in addition to our ongoing use of a broad mix of channels and tactics to ensure SMUD messages reach our customers in the communication channels they prefer. With customer communication channel preferences always evolving, we continue to look for new opportunities and channels to reach our customers. However, channels can be limited based on our service territory and especially when trying to reach customers that prefer communications in certain languages, we have limited opportunities.

Additionally, not all programs and services are intended for all customers, which is why target marketing and segmentation is necessary to reach customers most likely to qualify and benefit from a particular program or service.

5) Recommendation

It is recommended that the Board accept the Monitoring Report for SD-15 Outreach and Communication.

6) Appendices

APPENDIX A

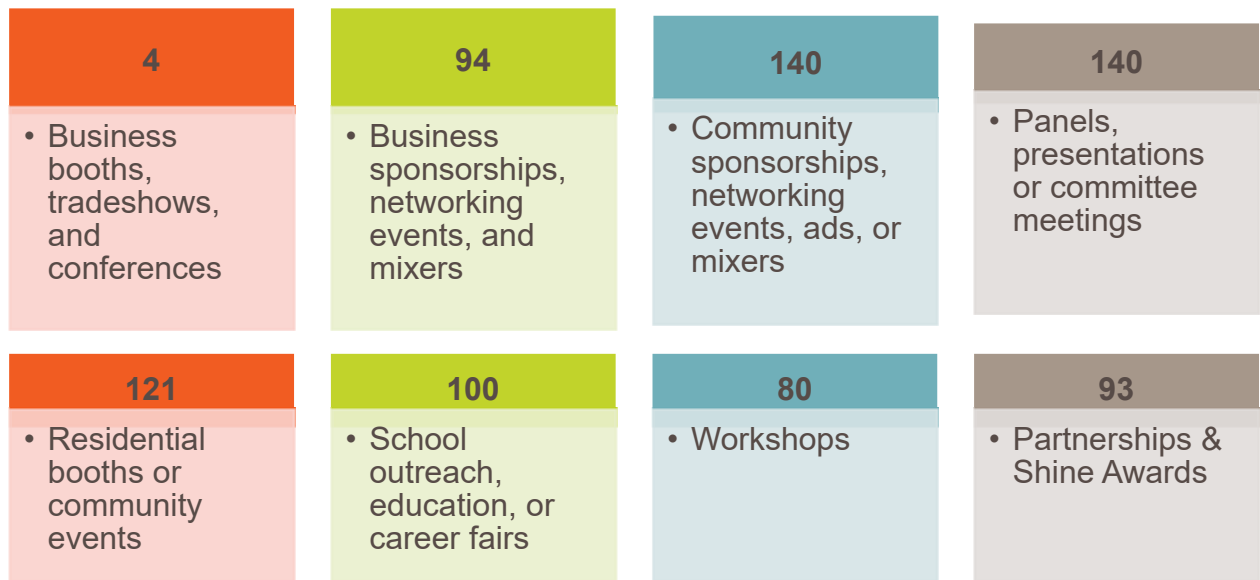
Community Outreach and Engagement

In 2020, we continued to be very active in the community through our support of efforts that improve the quality of life in our region. SMUD participated in 772 events and sponsorships, and SMUD employees volunteered 16,784 hours.

772
Total events & partnerships

16,784
Total volunteer hours

Following is the overview of total events, sponsorships, partnerships, workshops and other outreach that are included in total events and partnerships in 2020.



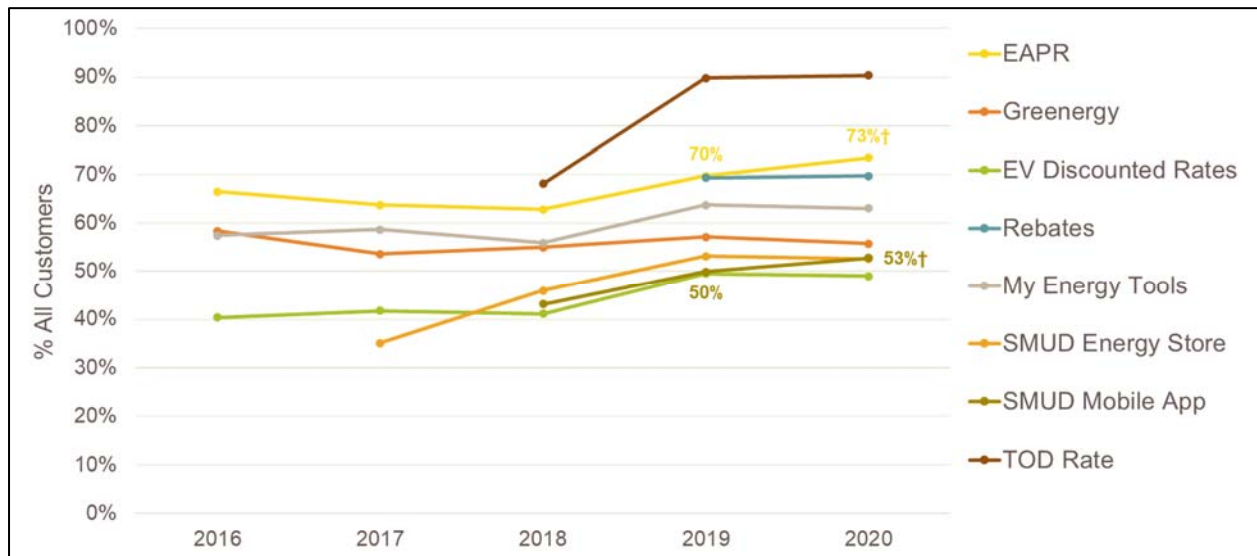
81.6% of events are cultural, ethnic and/or special populations. Special populations include arts, LGBTQ, low income, military, seniors, disabilities, education, environmental, health & safety and STEM.

APPENDIX B

Awareness of Programs by Ethnicity

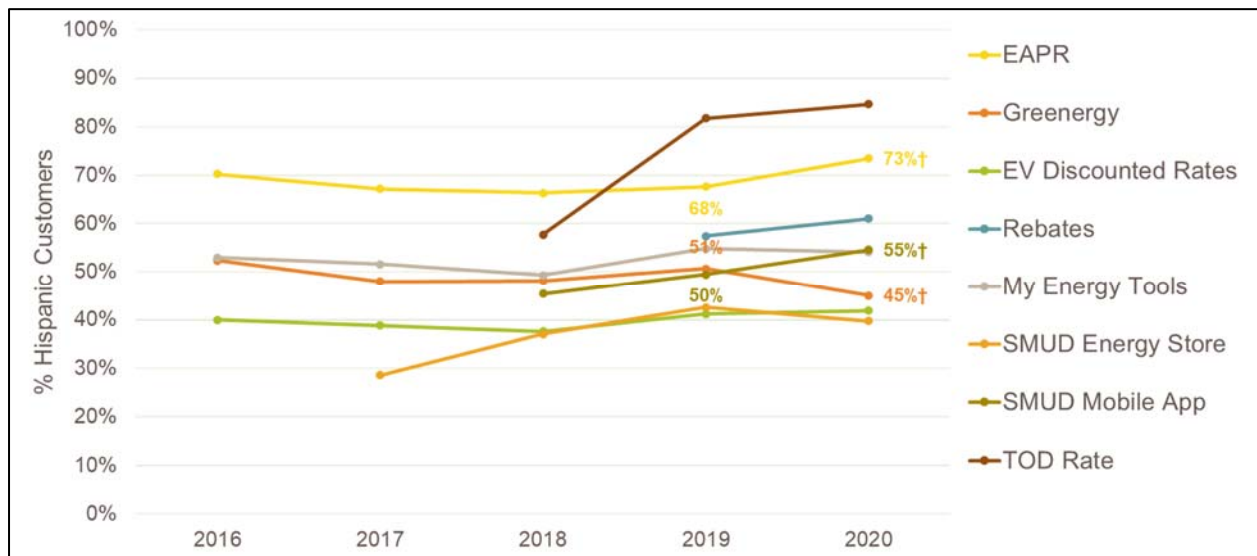
All Customers – Overall Awareness 2021

Awareness trends over past five years. Most programs were flat year over year, but we did see increases in awareness of EAPR and the SMUD App.



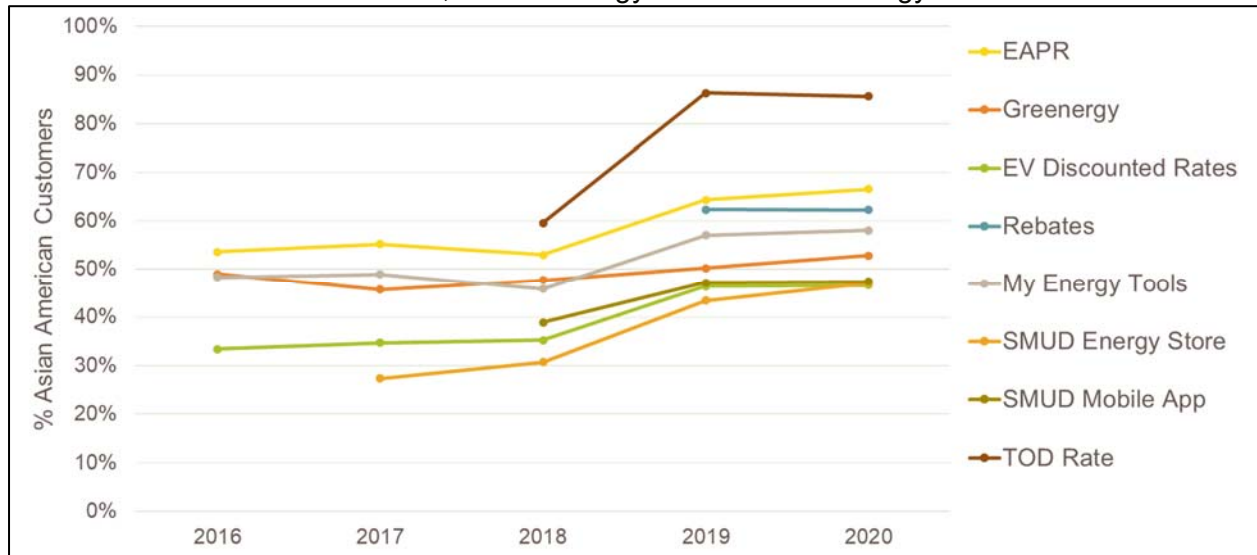
Hispanic or Latinx – Overall Awareness 2021

Awareness trends over last five years among Latinx or Hispanic customers. Increases in awareness for EAPR and the SMUD App, and a decrease for Greenergy.



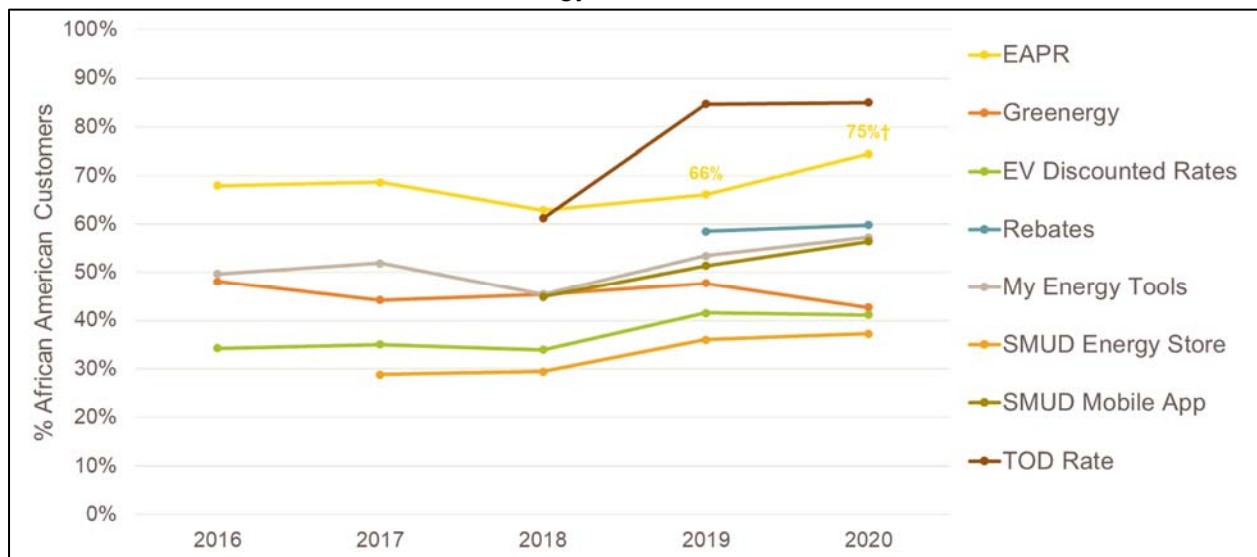
Asian Pacific Islander – Overall Awareness 2021

For Asian Pacific Islander customers, awareness of most programs was steady with slight increases in awareness for EAPR, SMUD Energy Store and Greenergy.



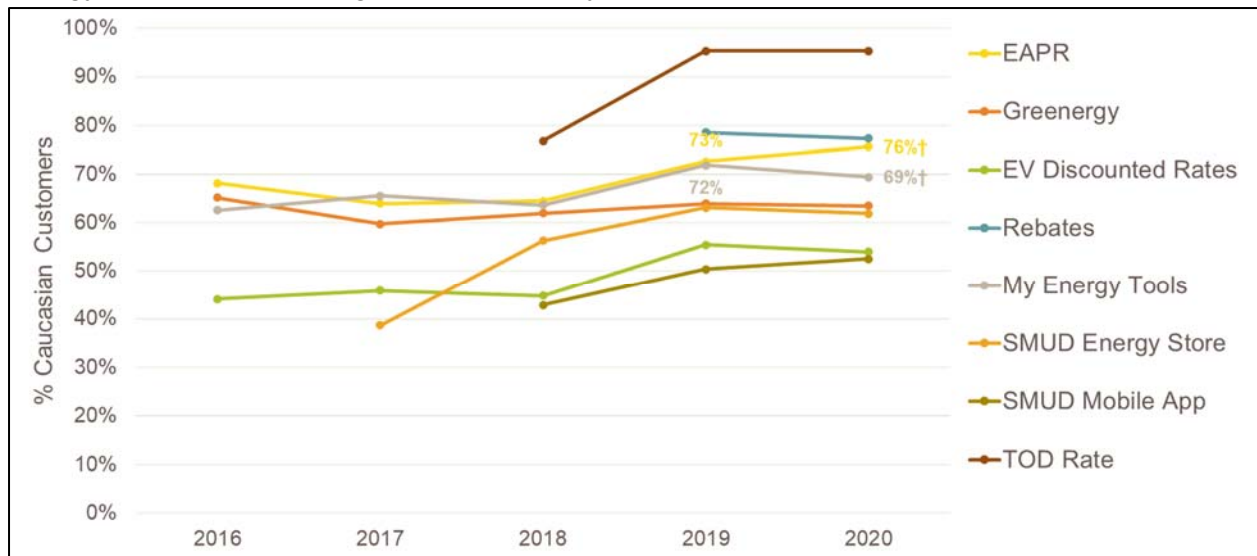
Black – Overall Awareness 2021

For Black customers, awareness was flat for most programs year-over-year. The exceptions are EAPR which had an increase and Greenergy which saw a decrease.



White – Overall Awareness 2021

Among White customers, we saw an increase in awareness of EAPR and a decrease for My Energy Tools. All other programs were steady.



RESOLUTION NO. 21-08-04

WHEREAS, in 2020, SMUD received a competitive offer from **DE Shaw Renewables Investment Company (DESRI)** for the **SloughHouse Solar, LLC (SHS)** project for 50 MW of solar photovoltaic power (Solar PV); and

WHEREAS, SMUD performed an evaluation of the market and determined that the **SHS** project provided superior value; and

WHEREAS, SMUD and **DESRI** negotiated a mutually beneficial **Power Purchase Agreement (PPA)** under which SMUD will purchase the energy, capacity and environmental attributes, including Portfolio Content Category 1 Renewable Energy Credits (PCC1 RECs), for 50 MW at a fixed price of \$34.46/MWh at the Point of Interconnection to SMUD's transmission system, for a term of 27 years with an optional three-year extension for a total of 30 years; and

WHEREAS, the project's scheduled commercial operation date is December 31, 2023, and will be located in the eastern portion of SMUD's service territory with SMUD having the option to purchase the facility after year 10; and

WHEREAS, the price and other terms proposed in the **PPA** are commercially reasonable and benefit SMUD's ratepayers; **NOW, THEREFORE,**

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. The Chief Executive Officer and General Manager, or his delegate, is authorized to negotiate and execute the **SloughHouse Solar, LLC (SHS) Power Purchase Agreement (PPA)** for a 27-year term, with one optional three-year extension for a total of 30 years, substantially in the form of **Attachment C**, and all other agreements necessary to facilitate the **SHS** project for 50 MW of solar photovoltaic power (Solar PV).

Section 2. The Chief Executive Officer and General Manager, or his delegate, is authorized to make future changes to the terms and conditions of the contract that, in his prudent judgment: (a) further the primary purpose of the

contract; (b) are intended to provide a net benefit to SMUD; and (c) do not exceed the authorized contract amounts and applicable contingencies.

Approved: August 19, 2021

INTRODUCED: DIRECTOR TAMAYO				
SECONDED: DIRECTOR FISHMAN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE	X			
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

**POWER PURCHASE AGREEMENT
BETWEEN
SACRAMENTO MUNICIPAL UTILITY DISTRICT
AND
SloughHouse Solar, LLC
DATED []**

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This POWER PURCHASE AGREEMENT (the "Agreement") for an Eligible Renewable Energy Resource is made and entered into this _____ day of _____, 2021, ("Effective Date"), by and between the Sacramento Municipal Utility District ("SMUD"), and SloughHouse Solar, LLC ("Seller"). SMUD and [_____] are sometimes referred to in this Agreement individually as a "Party" and collectively as the "Parties."

- A. Seller desires to interconnect and operate a fully integrated solar photovoltaic generation (the "Project"), as described in Exhibit A, to be located within SMUD's service territory and interconnected to SMUD's 69 kV distribution line (the "SMUD 69kV System")
- B. The Parties wish to enter into a power purchase agreement for the sale and purchase of all Energy, Capacity, Capacity Attributes, and Environmental Attributes from the Project directly to SMUD.
- C. In conjunction with this Agreement, the Parties wish to execute a Interconnection and Operating Agreement (together the two agreements are referred to as the "Definitive Agreements").
- D. This Agreement requires the Seller to be a retail customer and to obtain retail electrical service from SMUD to serve certain electrical loads at the premises identified in Exhibit A, except as otherwise permitted under SMUD's tariffs. This Agreement does not constitute an agreement by SMUD to provide retail electrical service to Seller. Such arrangements must be made separately between SMUD and Seller.
- E. An affiliate of Navajo Tribal Utility Authority may provide development assistance to the Project alongside the Seller, and as such, a portion of the Project proceeds may go to support electrification on the Navajo Nation.

NOW THEREFORE, in consideration of the mutual covenants contained in this Agreement, and of other good and valuable considerations, the sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. DEFINITION OF TERMS; RULES OF INTERPRETATION

1.1 DEFINITION OF TERMS

10-year Purchase Option: Has the meaning set forth in Section 19.1.

Accepted Compliance Expenditures: Has the meaning set forth in Section 3.4.3.

Actual Annual Solar Insolation: The actual amount of solar insolation at the Project site for each Contract Year, as reflected in the Solar Irradiance Data obtained from Solar Anywhere or other mutually agreeable third party, or as derived using another mutually agreeable mechanism.

Adjusted EAEP (AEAEP): The Expected Annual Energy Production adjusted for Actual Annual Solar Insolation according to the formula set forth in the definition of Expected Annual Energy Production (EAEP).

Adjusted MAEP (AMAEP): The Minimum Annual Energy Production adjusted for Actual Annual Solar Insolation according to the formula set forth in the definition of Minimum Annual Energy Production (MAEP).

Affiliate: Has the meaning set forth in Section 17.1.2.

Agreement: Has the meaning set forth in the Preamble.

Annual Energy Production (AEP): For any particular Contract Year, is equal to the total MWh generated by the Project and delivered to SMUD measured at the Project Meter. Any impact on production due to Force Majeure, SMUD Curtailment or SMUD's breach of this Agreement or the Interconnection Agreement that prevents or excuses Seller from delivering Energy to the Delivery Point, and Dispatch Down Periods, shall adjust the AEP according to the AAEP formula.

Adjusted Annual Energy Production (AAEP) =

AEP + Deemed Delivered Energy that could have been generated by the Project and delivered to SMUD but for (i) Force Majeure, (ii) SMUD Curtailment, (iii) SMUD's breach of this Agreement or the Interconnection Agreement that prevents or excuses Seller from delivering Energy to the Delivery Point, or (iv) Dispatch Down Periods.

Index Price: The applicable hourly Locational Marginal Price "LMP" for the Project, or if the LMP has not been established for the Project, the applicable hourly NP-15 EZ Gen Hub Price.

Available Capacity: The power output from the Project at the Delivery Point, expressed in megawatts (AC), that is available to generate Energy.

Balancing Authority: Entity responsible for the reliable planning and operation of the bulk power system in a defined area.

Bank: Has the meaning set forth in Section 9.2.

Bankrupt: With respect to any entity, such entity that (a) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar Law, (b) has any such petition filed or commenced against it which remains unstayed or undismissed for a period of ninety (90) days, (c) makes an assignment or any general arrangement for the benefit of creditors, (d) otherwise becomes bankrupt or insolvent (however evidenced), (e) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (f) is generally unable to pay its debts as they fall due.

Bid: Has the meaning set forth in the CAISO Tariff.

Business Day: Any Monday through Friday, inclusive, but excluding days that are observed as business holidays by either Party or days that are NERC Holidays.

CAISO: The California Independent System Operator Corporation or its successor.

CAISO Balancing Authority Area: The system of transmission lines and associated facilities that is operated by the CAISO and for which the CAISO has operational control and responsibility for grid reliability.

CAISO Tariff: The California Independent System Operator Corporation Agreement and Tariff, Business Practice Manuals (BPMs), and Operating Restrictions, including the rules, protocols, procedures and standards attached thereto, as the same may be amended or modified from time-to-time and approved by FERC.

California Energy Commission (CEC): The agency responsible for certifying eligible renewable resources and tracking the procurement of such resources.

California Renewables Portfolio Standard (RPS): The standard, codified in Public Utilities Code (PUC) Sections 399.11 through 399.20, and Public Resources Code Sections 25740 through 25751, as may be amended from time to time.

Capacity: The instantaneous ability of a generator to produce Energy (real power) at a specified output at the Delivery Point. Capacity is measured in megawatts ("MW") AC or kilowatts ("kW") AC.

Capacity Attributes: Any current or future defined characteristic, status, certificate, tag, credit, or ancillary service attribute, whether general in nature or specific as to the location or any other attribute of the Project, intended to value any aspect of the capacity of the Project to produce energy, charge and discharge energy or provide ancillary services, including, but not limited to, any accounting construct so that the full output of the Project may be counted toward a Resource Adequacy requirement or any other measure by an entity invested with the authority under federal or state law, to require SMUD to procure, or to procure at SMUD's expense, Resource Adequacy or other such products. For the avoidance of doubt, Capacity Attributes shall not include, and Seller shall have the right in its sole discretion to seek compensation for, reactive power and/or reactive power capability of the Project, and any such compensation shall be the sole property of Seller.

Capacity Shortfall: The Expected Capacity less the Installed Capacity that has been commissioned and is capable of reliably delivering Energy and meeting minimum functionality requirements under Section 2.3.7.

Change of Control: Any circumstance in which Ultimate Parent ceases (i) to retain the ability to control, directly or indirectly, the decision-making of Seller, or (ii) to own, directly or indirectly through one or more intermediate entities, more than fifty percent (50%) of the outstanding equity interests (measured by either voting power or economic interests) in Seller; provided that in calculating ownership percentages for all purposes of the foregoing:

- a) any ownership interest in Seller held by Ultimate Parent indirectly through one or more intermediate entities shall not be counted towards Ultimate Parent's ownership interest in Seller unless Ultimate Parent directly or indirectly owns more than fifty percent (50%) of the outstanding equity interests (measured by either voting power or economic interests) in each such intermediate entity; and
- b) ownership interests in Seller owned directly or indirectly by any lender (including any tax equity provider and any agent acting for or on behalf of such lender) shall be excluded from the total outstanding equity interests in Seller;

Provided that any Permitted Transfer shall not constitute or be deemed a "Change of Control." Furthermore, a foreclosure by any lender on the direct or indirect ownership interests in Seller (including a transfer in lieu of foreclosure or any Permitted Transfer) shall not constitute or be deemed a "Change of Control".

Clear Sky Model Report: A document which will contain agreed-upon irradiance and energy parameters for use in connection with Section 6.8 of this Agreement, and which has been acknowledged by the Parties as of the date hereof and is incorporated herein by reference; provided, however, that the Parties agree to amend and update the Clear Sky Model Report to the extent necessary to reflect the final equipment selection and actual size of the Project as of 180 days after the Commercial Operation Date. This document shall include an 8760 hourly representation of solar insolation at the Project, and shall include one minute data for every hour.

Closing: Has the meaning set forth in Section 19.3.

Closing Date: Has the meaning set forth in Section 19.3.

COD Conditions: Has the meaning set forth in Section 2.3.4.

COD Notice: Has the meaning set forth in Section 2.3.4.

Commercial Operation: The period of operation of the Project once the Commercial Operation Date has occurred.

Commercial Operation Date (COD): The date specified in the Commercial Operation Date Confirmation Letter on which the Project shall conform to the requirements for Commercial Operation.

Commercial Operation Date Confirmation Letter: A letter that the Parties execute and exchange in accordance with this Agreement, the form of which is attached as Exhibit E.

Compliance Expenditure Cap: Has the meaning set forth in Section 3.4.1.

Compliance Expenditure(s): Has the meaning set forth in Section 3.4.1.

Contract Price: The price set forth on Exhibit B, as may be adjusted in accordance with this Agreement

Contract Year: Any of the one-year periods during the Delivery Term, with the first Contract Year commencing on the COD and ending on the last day of the twelfth (12th) full month thereafter and each subsequent Contract Year commencing on the applicable anniversary of such date.

Costs: Has the meaning set forth in Section 8.5.1(c).

Day-Ahead Market: Has the meaning as defined in the CAISO Tariff.

Deemed Delivered Energy: The amount of Energy expressed in MWh that the Project would have produced and delivered to the Delivery Point, but that is not produced by the Project and delivered to the Delivery Point during a SMUD Curtailment, Dispatch Down Period, Force Majeure period or otherwise due to SMUD's breach of this Agreement or the Interconnection Agreement that prevents or excuses Seller from delivering Energy to the Delivery Point, which amount shall be calculated as set forth in Section 6.8 Determination of Deemed Delivered Energy.

Defaulting Party: Has the meaning set forth in Section 8.2.1.

Deficit Damages: Has the meaning set forth in Section 2.3.8.

Definitive Agreements: Has the meaning set forth in the Preamble.

Delay Damages: The compensation paid by Seller to SMUD due to a failure of Seller to meet the Scheduled Commercial Operation Date.

Delay LD Start Date: Has the meaning set forth in Section 2.3.7.

Delivery Point: The interconnection location of the Project on the high-side of the step-up transformers that interconnect to the SMUD 69kV System, where SMUD accepts title to the Product and associated attributes as described herein. The Delivery Point is identified in Exhibit A and is at the same location as the Point of Interconnection. For clarity the interconnection is made at two physical connection points to the SMUD 69kV System, and the Delivery Point combines the two interconnection points..

Delivery Term: Has the meaning set forth in Section 2.3.1.

Delivery Term Security: Has the meaning set forth in Section 9.2.

Development Security: Has the meaning set forth in Section 9.1.

Dispatch; Dispatchability: The ability of a generating unit to increase or decrease generation, or to be brought on line or shut down at the request of a utility's system operator.

Dispatch Down Instruction: Any direction, instruction or order to reduce the generation or delivery of Energy for the following reasons:

- a) An Emergency Condition;
- b) Any direction, instruction, or order given by RC West Reliability Coordinator or its successor (whether through the scheduling coordinator, Balancing Authority, or Host Electric Utility) for warnings of an Emergency Condition, or imminent condition or situation, which jeopardizes SMUD's Electric System or other Electric System integrity or the integrity of other systems to which they are connected; such direction, instruction, or order may result from a warning or forecast of overgeneration conditions but only to the extent such overgeneration is an imminent reliability issue. To the extent practicable under the circumstances and consistent with Prudent Utility Practice, any such curtailment of the Project shall be on an equitable, non-discriminatory basis. For purposes of clarity, any direction instruction, or order for overgeneration resulting from any economic scheduling or bidding of the Project is not a Dispatch Down Instruction and is a SMUD Curtailment;

provided, however, Dispatch Down Instructions shall not include any SMUD Curtailment.

Dispatch Down Period: Any period of reduction of the Project output or its generation of Products arising out of a Dispatch Down Instruction, including any ramp up and ramp down periods.

Distribution System: The relatively low voltage wires, transformers and related equipment generally used by an electric utility to deliver electric power to retail customers (as opposed to using it to move bulk quantities of power between different electric utilities or from large electric generators to a Distribution System).

Early Termination Date: Has the meaning set forth in Section 8.4.

Effective Date: Has the meaning set forth in the Preamble.

EIM: Shall mean the Western Energy Imbalance Market.

EIM Participating Resource: has the meaning set forth in the CAISO Tariff.

Electric System: The integrated electric generation, transmission, and distribution facilities owned or controlled by an electric utility.

Electrical Losses: All transmission or transformation losses between the Project and the Delivery Point, including losses associated with delivery of Energy to the Delivery Point.

Eligible Renewable Energy Resource (ERR): An Eligible Renewable Energy Resource as defined in California Public Utilities Code Section 399.12 and California Public Resources Code Section 25471, as either code may be amended or supplemented from time to time, as defined in the CEC Renewables Portfolio Standard Eligibility Guidebook, as may be amended or supplemented from time to time.

Emergency Condition: Any abnormal system condition that requires automatic or immediate manual action to prevent or limit the failure of transmission or distribution facilities or generation supply or that could adversely affect the reliability or integrity of the Bulk Electric System, SMUD Electric System, or an Electric System owned or controlled by a non-SMUD entity. As used in this definition of System Emergency, with respect to any action that may or must be taken, or judgment or determination of a Party, such action or judgment shall be exercised, or such determination shall be made, (i) in good faith, (ii) where applicable, in accordance with Prudent Utility Practice, and (iii) in a non-discriminatory manner. Emergency Condition includes a condition or situation:

- (a) That in SMUD's or Seller's reasonable judgment will likely endanger life or property;
- (b) That in the reasonable judgement of SMUD, is imminently likely to cause a material adverse effect on the security of, or damage to, SMUD's Electric System, SMUD's Interconnection Facilities or the Electric Systems of others entities to which the SMUD Electric System is directly connected;
- (c) An imminent condition or situation, which jeopardizes SMUD's Electric System reliability or integrity, or the reliability or integrity of other Electric Systems to which the SMUD is connected, or
- (d) That in the reasonable judgment of Seller, is imminently likely to cause a material adverse effect on the security of, or damage to, the Facility or Seller's interconnection facilities. System restoration or black start shall be considered a System Emergency; provided, however, that the Facility shall not be obligated to possess black start capability EMS: Has the meaning set forth in Section 5.4.

Energy: Electrical energy produced by the Project and delivered with the voltage and quality required by SMUD in accordance with the IA, and measured in megawatt-hours (MWh) or kilowatt-hours (kWh) at the Delivery Point.

Energy Deviation: Has the meaning set forth in Section 7.4.

Environmental Attributes: All Environmental Attributes, as that term is defined in D.08-08-028 of the California Public Utilities Commission, as may be amended, and all renewable energy credits as that term is defined under section 399.12 of the California Public Utilities Code, as may be amended, all Renewable and Environmental Attributes as defined by WREGIS, as well as any credits, carbon benefits, carbon emission reductions, carbon offsets or allowances, howsoever entitled, attributed to the Energy produced by the Project and delivered to the Delivery Point recognized under Assembly Bill 32 Global Warming Solutions Act of 2006, as may be amended.

ETR: Has the meaning set forth in Section 7.6.

Event of Default: Has the meaning set forth in Section 8.2.1.

Excusable Delay: Any delay that is caused by one or more of the following: (i) an event of Force Majeure, (ii) breach of this Agreement by SMUD or other material action or inaction on the part of SMUD that prevents the Seller from fulfilling its obligations, in whole or in part, under this Agreement, (iii) an unforeseen delay in the Permitting process (including any delay by a Governmental Authority in the issuance or maintenance of a Permit) or any other challenge to a Permit that is not a result of any breach by Seller, (iv) a breach by SMUD under the Interconnection Agreement, or (v) a delay in completion of any interconnection or transmission facilities or upgrades related to the Project.

Expected Annual Energy Production (EAEP): The Energy that the Project can be expected to produce during a typical year of operation, factoring in typical weather patterns, expected solar irradiance, etc.

The EAEP for each Contract Year is set forth in Exhibit C. Any variance in the Actual Annual Solar Insolation from typical (up or down) shall adjust the EAEP according to the following formula:

Adjusted EAEP (AEAEP) =

EAEP * (Actual Annual Solar Insolation/Typical Annual Solar Insolation)

Expected Capacity: Is as specified in Exhibit A.

Extended Term: Has the meaning set forth in Section 2.3.1.

Facility Debt: Means the obligations of Seller or its Affiliates to any lender or tax equity investor pursuant to the Financing Documents, including principal of, premium and interest on indebtedness, fees, expenses or penalties, amounts due upon acceleration, prepayment or restructuring, swap or interest rate hedging breakage costs and any fees or interest due with respect to any of the foregoing plus an amount sufficient to ensure that the tax equity investor recovers the greater of (1) its investment balance under generally accepted accounting principles (as determined immediately prior to exercise of the applicable purchase option) and any investment tax credit recaptured as result of such exercise and (2) the amount necessary to allow all tax equity investors to achieve their hurdle rate required for the partnership flip to occur under any tax equity financing (or if any tax equity financing has a fixed date as the flip date, the amount necessary to allow all tax equity investors to achieve a rate of return equal to the rate of return used to determine the flip date under such tax equity financing).

Fair Market Value: Has the meaning set forth in Section 19.6.

FERC: The Federal Energy Regulatory Commission or any successor government agency.

Final Purchase Option: Has the meaning set forth in Section 19.1.

Force Majeure: An event or circumstance occurring after the Effective Date that prevents or delays the ability of one Party from performing obligations under this Agreement, and which is not in the reasonable control of, or the result of negligence of, the Party claiming Force Majeure, and which the claiming Party is unable to overcome or cause to be avoided by the exercise of due diligence. Force Majeure shall include the following events, to the extent consistent with the prior sentence: (a) An act of nature, riot, insurrection, war, explosion, labor dispute, fire, flood, earthquake, volcanic eruption, storm, lightning, tsunami, backwater caused by flood, act of the public enemy, terrorism, or epidemic; (b) Interruption of transmission or generation services as a result of a physical Emergency Condition (and not SMUD Curtailment) not caused by the fault or negligence of the Party claiming Force Majeure and reasonably relied upon and without a reasonable source of substitution to make or receive deliveries hereunder, civil disturbances, strike, labor disturbances, labor or material shortage, national emergency, court order or other action by a Governmental Authority that prevents a Party from fulfilling its obligations under this Agreement (excluding, with respect to any claim by SMUD, any action or inaction of the SMUD Board of Directors or any person with the authority to bind SMUD); (c) any delays in obtaining any permits, authorizations, or entitlements to construct or operate the Project beyond the date as set forth in Exhibit N Project Milestone Schedule, except to the extent caused by the affected Party, and the requirement to obtain any additional permit, authorization or entitlement to construct or operate the Project that is not included in Exhibit N Project Milestone Schedule that arises after the Effective Date if the timeline for obtaining such permit, authorization and entitlement affects Seller's ability to achieve any milestone hereunder. Under no circumstances shall either Party's financial incapacity, Seller's ability to sell Products at a more favorable price or under more favorable conditions or SMUD's ability to acquire Products at a more favorable price or under more favorable conditions or other economic reasons constitute an event of Force Majeure. The term "Force Majeure" does not include Forced Outages to the extent such are not caused or exacerbated by an event of Force Majeure as described above, nor does it include Seller's inability to obtain financing or other equipment and instruments necessary to plan for, construct, or operate the Project.

Forced Outage: Means an unplanned outage of one or more of the Project's components that results in a reduction of the ability of the Project to produce Energy, and that is not the result of a Force Majeure event and specifically excludes any planned maintenance or Planned Outage.

Full Access: Has the meaning set forth in Section 19.2.

GHG: Means greenhouse gas.

Governmental Authority: The federal government of the United States, and any state, county, municipal or local government or regulatory department, body, political subdivision, commission, agency, instrumentality, ministry, court, judicial or administrative body, taxing authority, or other authority thereof (including any corporation or other entity owned or controlled by any of the foregoing) having jurisdiction

over any Party, the Project, the site of the Project, or the rights or obligations of any Party under this Agreement, whether acting under actual or assumed authority, provided, however, that SMUD and Seller shall not be considered a Governmental Authority hereunder. The CAISO shall be considered a Governmental Authority.

Green-e: The national independent certification and verification program for renewable energy. Green-e developed the Green-e Renewable Energy Standard of Canada and the United States, as may be amended from time to time, or replacement verification program.

Green-e Standard: The Green-e Energy Tracking Attestation Form for generators participating in a tracking system, currently available at <https://www.tfaforms.com/4652008> as such form may be updated from time to time, with Seller electing WREGIS on such form.

Guaranteed Commercial Operation Date or Guaranteed COD: The date that is nine (9) months after the Scheduled Commercial Operation Date, as specified in Exhibit A and subject to day-for-day extension to the extent the Scheduled Commercial Operation Date is extended as provided in Section 2.3.7.

Host Electric Utility: An electric utility that provides, at the general location of the Project, any of the following: electric transmission service, distribution service and/or retail electricity sales.

Installed Capacity: The amount of Capacity installed that shall be provided from the Project to SMUD at the Delivery Point. Installed Capacity is measured at the Delivery Point, after any applicable Project step-up transformer losses, and where applicable, losses up to the Delivery Point.

Integral Station Service Load: That subset of station service load that is so integrated with the Project design that it is not feasible for SMUD to meter and serve such demand during Project operations on a stand-alone basis.

Interconnection Agreement or IA: The Interconnection and Operating Agreement (IA) between SMUD and Seller specific to the interconnection of the Project to the SMUD 69kV System.

Interest Rate: Shall be the lesser of (a) 4% plus the “prime rate” of interest as published on that date in the Wall Street Journal, and generally defined therein as “the base rate on corporate loans posted by at least 75% of the nation’s 30 largest banks,” or if the Wall Street Journal is not published on a date for which such interest rate must be determined, the “prime rate” published in the Wall Street Journal on the nearest-preceding date on which the Wall Street Journal was published, or if the Wall Street Journal is no longer in publication, such other similar interest rate reasonably agreed to by the Parties, and (b) the highest rate permitted under applicable Law.

ITC or Investment Tax Credit: The investment tax credit established pursuant to Section 48 of the United States Internal Revenue Code of 1986, as it may be amended from time to time.

J. Aron: Has the meaning set forth in Section 17.2.

Law: Any statute, law, treaty, rule, regulation, ordinance, code, enactment, injunction, order, writ, decision, authorization, judgment, decree or other written legal or regulatory determination or restriction by a court or Governmental Authority of competent jurisdiction.

Letter of Credit: One or more irrevocable, standby letters of credit issued by a Qualified Issuer in substantially the form set forth in Exhibit Q.

Loss: Has the meaning set forth in Section 8.5.1(a).

Maximum Hourly Energy Delivery: The maximum energy (MW) that SMUD will make payment for in any delivery hour, which is equal to Expected Capacity * 1 hour.

Measurement Period: Any two consecutive Contract Year periods during the Delivery Term.

Minimum Annual Energy Production (MAEP): For the first Contract Year, an amount equal to 90% of the Expected Annual Energy Production (EAEP) amount for such Contract Year and thereafter, the amount equal to 90% of the sum of the two Expected Annual Energy Production (EAEP) amounts during a Measurement Period, as set forth in Exhibit C. Any variance in the Actual Annual Solar Insolation from typical (up or down) shall adjust the MAEP according to the following formula.

Adjusted Minimum Annual Energy Production (AMAEP) =

MAEP * (Sum of Actual Annual Solar Insolation amounts for the two Contract Years in the Measurement Period / Sum of the Typical Annual Solar Insolation amounts for the two Contract Years in the Measurement Period)

Monthly Settlement Amount: On and after COD, the monthly settlement amount will equal (a) the Energy delivered to and metered at the Project Meter (in MWh) plus Deemed Delivered Energy during SMUD Curtailment or SMUD's breach of the Agreement or the Interconnection Agreement that prevents or excuses Seller from delivering Energy to the Delivery Point, times (b) the Contract Price, subject to adjustment as set forth in Section 2.4.2(b) for REC delivery shortfalls.

Moody's: Moody's Investors Service, Inc., or any successor organization thereto.

MW: Megawatt(s) of alternating current.

MWh (Megawatt-hours): A unit of energy measurement corresponding to 1,000 kilowatt-hours.

NERC: The North American Electric Reliability Corporation, or any successor organization.

NERC Holidays: Days that NERC establishes as holidays for electric energy trading.

Non-Defaulting Party: Has the meaning set forth in Section 8.2.2(a).

NP-15: The zone within the CAISO Balancing Authority area designated as North of Path 15 by the CAISO for congestion settlement purposes.

NP-15 EZ Gen Hub Price: The day-ahead hourly locational marginal price as published by the CAISO for generator transactions in the NP-15 zone of the CAISO.

Option Notice: Has the meaning set forth in Section 19.1.

Outage Notification Procedure: The outage notification procedure outlined in Exhibit G.

Party/Parties: SMUD and Seller are referred to individually as a "Party" and collectively as "Parties."

PCC1 REC Price: Has the meaning set forth in Section 2.4.2(b).

Performance Tolerance Band: Has the meaning set forth in Section 7.4.

Permits: Permits, licenses, certificates, concessions, consents, waivers, exemptions, variances, franchises, orders, decrees, rights, registrations, submissions, determinations, authorizations, approvals, registrations, orders, and filings.

Permitted Transfer: Means

- a) Foreclosure by any lender on the direct or indirect ownership interests in Seller (including a transfer in lieu of foreclosure or any transfer to a Qualified Transferee);
- b) Any direct or indirect transfer of equity interests in Seller in connection with a tax equity financing (for purposes of clarity, this does not prohibit or otherwise restrict any transfer of interests in the Project);
- c) Any direct or indirect transfer of this Agreement or equity interests in Seller to an Affiliate of Seller (including any investment fund or partnership for which an Affiliate of Seller is the managing member), provided that in the case of a transfer of this Agreement only, such Affiliate's creditworthiness is equal to or better than that of Seller;
- d) Any direct or indirect transfer of this Agreement or any equity interests in Seller to a person succeeding to all or substantially all of the assets of Seller; or
- e) Any direct or indirect transfer of this Agreement or any equity interests in Seller to a Qualified Transferee.

PG Damages: Has the meaning set forth in Section 2.4.8.

PG Shortfall: Has the meaning set forth in Section 2.4.8.

Planned Outage: An outage that has been scheduled in advance pursuant to the provisions of Section 7.5 of one or more of the Project's components that results in a reduction of the ability of the Project to produce Energy.

Plant Controller: Device or compilation of devices used to take inputs either directly or indirectly from SMUD. Plant Controller must be capable of interfacing with SMUD's Supervisory Control and Data Acquisition System SCADA using industry standard protocol such as DNP3.0. The Plant Controller or Controllers will be capable of individual and combined control of each of the 25MW solar fields independently.

Pmax: The maximum generation potential of the Project at any point in time

Point of Interconnection: Either of the two specific point of interconnection locations at the 69kV side of the disconnect switch as shown in IA Exhibit C Interconnection One Line Diagram. For clarity there are two physical points of interconnection of the Sloughhouse Project. The two POIs are to be aggregated as a single Delivery Point.

Portfolio Content Category 1 (PCC1): Renewable energy comprised of Energy and Environmental Attributes meeting the criteria defined by the CEC Renewables Portfolio Standard Eligibility Guidebook, for Portfolio Content Category 1, as may be amended or supplemented from time to time, and meeting any applicable regulations promulgated by the CEC.

Product: All Energy, Environmental Attributes (including but not limited to Renewable Energy Certificates (RECs)), Capacity, and Capacity Attributes of the Project, in each case which are or can be produced by or associated with generation from the Project. Product must count in SMUD's Renewables Portfolio Standard (RPS) portfolio as a Portfolio Content Category One (PCC 1) resource, as defined by the CEC RPS Eligibility Guidebook, as may be amended or supplemented from time to time or otherwise consistent with applicable regulations promulgated by the CEC as generated by the Project and delivered to the Delivery Point under this Agreement. Product includes, but is not limited to, all Energy and energy-related products and energy-related attributes currently defined as Energy, Capacity, Capacity rights, flexibility, frequency response, ancillary services, and green attributes. Any energy product or feature that can be valued intrinsically or extrinsically is included in Product. For the avoidance of doubt, there are no products or energy-related products or energy-related attributes retained by Seller.

Project: Has the meaning provided in the recitals.

Project Meter: The bi-directional revenue quality meter or meters, along with a compatible data processing gateway or remote intelligence gateway, telemetering equipment and data acquisition services sufficient for monitoring, recording and reporting, in real time, the amount of Energy produced by the Project. For clarity, (i) the Project will contain multiple measurement devices that will make up the Project Meter, and, unless otherwise indicated, references to the Project Meter shall mean all such measurement devices and the aggregated data of all such measurement devices, taken together, and (ii) the Project Meter will be located, and the Energy will be measured, at the high voltage side of the main step up transformer .

Proposed Purchase Notice: Has the meaning provided in Section 2.3.2.

Proposed Sale Notice: Has the meaning provided in Section 2.3.2.

Prudent Utility Practice: Those practices, methods and acts that would be implemented and followed by prudent operators of solar photovoltaic electric energy generating facilities in the Western United States, similar to the Project, during the relevant time period, which practices, methods and acts, in the exercise of prudent and responsible professional judgment in the light of the facts known at the time the decision was made, could reasonably have been expected to accomplish the desired result consistent with prudent business practices, reliability, and safety. Seller acknowledges that the use of Prudent Utility Practice by Seller does not exempt Seller from any obligations set forth in this Agreement.

Prudent Utility Practice includes, at a minimum, those professionally responsible practices, methods and acts described in the preceding paragraph that comply with manufacturers' warranties, restrictions in this Agreement, the IA, the requirements of Governmental Authorities, and WECC and NERC standards. Prudent Utility Practice is not required to be the optimum practice, method or act to the exclusion of all others.

Prudent Utility Practice also includes taking reasonable steps in accordance with the first sentence of this definition to ensure that:

- a) Equipment, materials, resources, and supplies, including spare parts inventories, are available to meet the Project's needs;
- b) Sufficient operating personnel are available at all times and are adequately experienced and trained and licensed as necessary to operate the Project properly and efficiently, and are capable of responding to reasonably foreseeable emergency conditions at the Project and emergencies whether caused by events on or off the Project site;
- c) Preventive, routine, and non-routine maintenance and repairs are performed on a basis that ensures reliable, long-term and safe operation of the Project, and are performed by knowledgeable, trained, and experienced personnel utilizing proper equipment and tools;
- d) Appropriate monitoring and testing are performed to ensure equipment is functioning as designed;
- e) Equipment is not operated in a reckless manner, in violation of manufacturer's guidelines, warranty requirements, or in a manner unsafe to workers, the general public, or the connecting utility's Electric System or contrary to environmental laws, permits or regulations or without regard to defined limitations such as, flood conditions, safety inspection requirements, operating voltage, current, volt ampere reactive (VAR) loading, frequency, rotational speed, polarity, synchronization, and control system limits; and

- f) Equipment and components are designed and manufactured to meet or exceed the standard of durability that is generally used for solar photovoltaic electric energy generating facilities operating in the Western United States and will function properly over the full range of ambient temperature and weather conditions reasonably expected to occur at the Project site and under both normal and emergency conditions.

Purchase Option: Has the meaning set forth in Section 19.1.

Purchase Option Due Diligence Period: Has the meaning set forth in Section 19.2.

Purchase Price: Has the meaning set forth in Section 19.1.

PV: Photovoltaic.

Qualified Issuer: Has the meaning set forth in Section 9.2.

Qualified Transferee: Means a person that (a) for the three (3) preceding years, has owned or operated (or had access to the expertise required to operate through committed management agreements with its Affiliates or through a committed operations and maintenance agreement with any person) at least 100 MWs of renewable energy generation facilities and (b) either itself or its direct or indirect parent, has (i) a tangible net worth of at least \$50,000,000 or (ii) a credit rating of "BBB-" or higher by S&P or "Baa3" or higher by Moody's.

RC West Reliability Coordinator: The entity that fulfills the duties of the Reliability Coordinator, as defined by NERC, and as delegated by the WECC, for its Reliability Coordinator Area in the western United States and western Canada, or CAISO Reliability Coordinator or any successor organization.

Real-Time Market: Has the meaning as defined in the CAISO Tariff.

Real-Time Price: The CAISO Locational Marginal Price (or "LMP") at the Project as defined in the CAISO Tariff. If there is more than one applicable Real-Time Price for the same period of time, Real-Time Price shall mean the price associated with the shortest time interval.

Reimbursement Agreement: means that certain Reimbursement and Waiver Agreement entered into between the Parties as of the date hereof.

Renewable Energy Credit (REC): A certificate of proof issued by WREGIS that an Eligible Renewable Energy Resource (ERR) has generated one megawatt hour (MWh or 1,000 kWh) of electricity. A REC shall also have the same meaning as in California Public Utilities Code Section 399.12(h). Currently RECs are used to convey Environmental Attributes associated with electricity production by a renewable energy resource. For purposes of this Agreement, the term REC shall be synonymous with bundled or unbundled renewable energy credit, tradable renewable energy certificates, WREGIS certificate, or any other term used to describe the documentation that evidences the renewable and Environmental Attributes associated with electricity production by an Eligible Renewable Energy Resource.

Required Percentage: Ninety percent (90%) of the Expected Capacity.

Resource Adequacy: A requirement by a Governmental Authority or in accordance with its FERC-approved tariff, or a policy approved by a local regulatory authority, that is binding upon either Party and that requires such Party procure a certain amount of electric generating Capacity.

RPS Certification: A certification by the CEC that the Project is eligible for the purposes of the California Renewable Portfolio Standard, and that all Energy produced by the Project, qualifies as generation from an Eligible Renewable Energy Resource.

RPS Pre-Certification: A pre-certification by the CEC, obtained by Seller that the Project is eligible for purposes of the California Renewables Portfolio Standard.

S&P: Standard & Poor's Financial Services, LLC (a subsidiary of McGraw-Hill Companies), or any successor organization thereto.

Scheduled Commercial Operation Date: The planned Commercial Operation Date of the Project set forth in Exhibit A, as such date may be extended as provided in Section 2.3.7.

Scheduling: The act of producing, or relating to the production of, a schedule for the delivery, production or use of Energy, Capacity, and/or transmission that is in compliance with NERC Scheduling (NERC tagging) requirements.

Scheduling Coordinator: Has the meaning set forth in the CAISO Tariff.

Scheduling Penalties: Has the meaning set forth in Section 7.4.

Seller: The Party so identified in the preamble of this Agreement, and its successors and permitted assigns.

Settlement Interval: Has the meaning set forth in Section 7.4.

Settlement Period: Has the meaning set forth in Section 2.4.7(a).

SMUD: The Sacramento Municipal Utility District

SMUD Curtailment: Any curtailments, interruptions, or reductions of Project output that are not due to a Dispatch Down Instruction, as further described in Section 6.7. For the avoidance of doubt, SMUD Curtailment includes (i) any discretionary curtailment ordered by or arising from SMUD, (ii) any economic curtailments, including any curtailment arising out of any pre-scheduling, scheduling, bidding or offering activities with respect to the Project, and (iii) any curtailments that are deemed SMUD Curtailment under Section 7.6.

SMUD Revenue Meter: A revenue meter operated by SMUD that determines the amount of Energy measured at the applicable meter location.

SMUD Service Territory: The geographical area in which SMUD is the provider of distribution service. This includes virtually all of Sacramento County and a small part of neighboring Placer County.

Solar Irradiance Data: Data used for measuring solar insolation comprising global horizontal irradiance (GHI, W/m²), diffuse horizontal irradiance (DHI, W/m²), and direct normal irradiance (DNI, W/m²), and as otherwise agreed upon by the Parties.

Surety Bond: A surety bond issued for the benefit of the SMUD issued by a surety that is (i) is duly licensed or authorized in the State of California to issue bonds for the limits required and (ii) is otherwise mutually agreed to by Seller and Buyer.

Suspension Date: Has the meaning set forth in Section 8.2.2(b)(ii).

Term: Has the meaning set forth in Section 8.1.

Termination Event: Has the meaning set forth in Section 8.3.

Termination Payment: Has the meaning set forth in Section 8.5.

Test Energy: The Product produced by the Project, delivered to SMUD at the Delivery Point, and purchased by SMUD pursuant to Section 2.4.1 of this Agreement, prior to the Commercial Operation Date.

Third-Party SC: Has the meaning set forth in Section 7.2

Transfer: Has the meaning set forth in Section 17.1.

Typical Annual Solar Insolation: The typical annual solar insolation at the Project site, derived from Solar Irradiance Data provided from 3rd Party source as mutually agreed by the Parties. The Typical Annual Solar Insolation is set forth in Exhibit D.

Ultimate Parent: DESRI Holdings, L.P.

VER Forecast: The CAISO process covering variable energy resources scheduling in Day Ahead and forward markets where automated forecast updates displace placeholder energy schedules at the fifteen-minute and five-minute intervals of each hour.

WECC: The Western Electricity Coordinating Council, which is the regional entity responsible for coordinating and promoting bulk electric system reliability in the western United States and western Canada, or any successor organization.

WREGIS: Has the meaning set forth in Exhibit H.

WREGIS Certificate: Has the meaning set forth in Exhibit H.

WREGIS Operating Rules: Has the meaning set forth in Exhibit H.

WREGIS Shortfall: Has the meaning set forth in Section 2.4.2(b).

1.2 RULES OF INTERPRETATION

In this Agreement, except as expressly stated otherwise or unless the context otherwise requires:

1.2.1 headings and the rendering of text in bold and italics are for convenience and reference purposes only and do not affect the meaning or interpretation of this Agreement;

1.2.2 words importing the singular include the plural and vice versa and the masculine, feminine and neuter genders include all genders;

1.2.3 the words “hereof”, “herein”, and “hereunder” and words of similar import shall refer to this Agreement as a whole and not to any particular provision of this Agreement;

1.2.4 a reference to an Article, Section, paragraph, clause, Party, or Exhibit is a reference to that Section, paragraph, clause of, or that Party or Exhibit to, this Agreement unless otherwise specified;

1.2.5 a reference to a document or agreement, including this Agreement shall mean such document, agreement or this Agreement including any amendment or supplement to, or replacement, novation or modification of this Agreement, but disregarding any amendment, supplement, replacement, novation or modification made in breach of such document, agreement or this Agreement;

1.2.6 a reference to a person or entity includes that person’s or entity’s successors and permitted assigns;

1.2.7 the term “including” means “including without limitation” and any list of examples following such term shall in no way restrict or limit the generality of the word or provision in respect of which such examples are provided;

1.2.8 references to any statute, code or statutory provision are to be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or reenacted, and include references to all bylaws, instruments, orders and regulations for the time being made thereunder or deriving validity therefrom unless the context otherwise requires;

1.2.9 in the event of a conflict, a mathematical formula or other precise description of a concept or a term shall prevail over words providing a more general description of a concept or a term;

1.2.10 references to any amount of money shall mean a reference to the amount in United States Dollars;

1.2.11 the expression “and/or” when used as a conjunction shall connote “any or all of”;

1.2.12 words, phrases or expressions not otherwise defined herein that (i) have a generally accepted meaning in Prudent Utility Practice shall have such meaning in this Agreement or (ii) do not have well known and generally accepted meaning in Prudent Utility Practice but that have well known and generally accepted technical or trade meanings, shall have such recognized meanings; and

1.2.13 each Party acknowledges that it was represented by counsel in connection with this Agreement and that it or its counsel reviewed this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement.

2. PROJECT; PURCHASE AND SALE OF PRODUCTS

2.1 Project and Expected Capacity

This Agreement governs SMUD's purchase of the Product from the Project as described in Exhibit A. The Expected Capacity is shown in Exhibit A. Seller shall be permitted to modify, augment and/or replace the Project and its equipment and components with other equipment and components, at any time prior to or following Commercial Operation, so long as the Expected Capacity, as measured at the Delivery Point, is not modified. Notwithstanding the foregoing, at least ninety (90) days prior to the date on which Seller reasonably anticipates that Commercial Operation will occur, Seller will provide SMUD with a written notice that sets forth the Expected Capacity based on the final design of the Project and a final version of Exhibit A, which shall identify any updates or changes to certain of the equipment and components set forth in Exhibit A as attached to this Agreement. During the Delivery Term, Seller may modify the Project and its equipment and components from time to time so long as Seller provides SMUD with reasonably prompt written notice setting forth any modifications to Exhibit A. Once provided by Seller, this Agreement shall be deemed amended to include such final or modified version of Exhibit A.

2.2 Products Purchased

During the Delivery Term, Seller shall sell and deliver, or cause to be delivered, and SMUD shall purchase and receive, or cause to be received, all Products at the Contract Price. All Products shall be supplied only from the Project, and shall be supplied from the Project only to SMUD and all Products are supplied “as-available”. Seller may not interrupt deliveries for economic reasons, unless directed by SMUD pursuant to Section 6.7. Notwithstanding the foregoing, Seller may interrupt or reduce deliveries due to Force Majeure, Planned Outages, Forced Outages, Dispatch Down Instructions, SMUD Curtailments, reduced solar

insolation, and in mitigation of a SMUD breach of this Agreement preventing or excusing Seller from delivering Product at the Delivery Point.

As of the Effective Date and during the Delivery Term and except as otherwise provided in Section 3.4, Seller, and, if applicable, its successors, represents and warrants that throughout the Delivery Term of this Agreement that the Project's output delivered to SMUD qualified under the requirements of California Public Utilities Code 399.16(b)(1) of the Public Utilities Code for a Portfolio Content Category 1 transaction.

2.3 Delivery Term, Delivery Point, and Commercial Operation

2.3.1 Delivery Term

The "**Delivery Term**" shall commence at the start of the hour ending 01:00 PST on the COD and shall expire at the completion of the hour ending 24:00 PST on the last day of the twenty-seventh (27th) Contract Year thereafter unless terminated earlier as set forth herein, including for exercise of the Project Purchase Option, or extended pursuant to this Section 2.3.1; provided, that either Party may extend the Delivery Term beyond the initial 27 Contract Years for three (3) additional Contract Years (the "**Extended Term**") by providing notice to the other Party within twelve (12) months prior to the end of the 27th Contract Year; provided that an independent, licensed appraisal and valuation consultant that is mutually agreed upon by SMUD and Seller has determined that the Delivery Term and the Extended Term shall not extend for more than eighty percent (80%) of the estimated useful life of the Project and the estimated remaining residual value of the Project at the conclusion of the Extended Term shall be equal to at least twenty percent (20%) of the original cost of the Project.

2.3.2 Right of First Refusal for Project Energy after Delivery Term

No later than twelve (12) months prior to the end of the thirtieth (30th) Contract Year, if Seller chooses to sell Energy from the Project to any third party, Seller shall first provide notice of such intended sale to SMUD ("**Proposed Sale Notice**"). Upon receipt of such Proposed Sale Notice, SMUD will have thirty (30) days in which to provide notice to Seller indicating SMUD's interest in negotiating with Seller to purchase Products from the Project, which notice shall include SMUD's proposed contract price for such continued purchase ("**Proposed Purchase Notice**"). If SMUD provides such Proposed Purchase Notice to Seller, then the Parties shall undertake for a period of sixty (60) days from the date of SMUD's Proposed Purchase Notice to determine if they are able to reach mutual agreement on the terms and conditions of a sale under a separate agreement of the Products to SMUD after the end of the thirtieth (30th) Contract Year. If SMUD does not timely provide a Proposed Purchase Notice to Seller or if the Parties are unable to agree upon the terms and conditions of any sale of Products to SMUD within such 60-day negotiation period set forth above, then Seller shall be free to negotiate for the sale of energy and other products from the Project to any third party thereafter. For the avoidance of doubt, Seller is not obligated to provide such Proposed Sale Notice if it does not intend to make third party sales after the end of the Delivery Term or if Seller determines in its reasonable discretion that sales to SMUD after the thirtieth (30th) Contract Year would negatively impact its ability to qualify for the Investment Tax Credit, due to extension of the Term for more than eighty percent (80%) of the estimated useful life of the Project, or the estimated remaining residual value of the Project at the conclusion of the extended Term would be less than twenty percent (20%) of the original cost of the Project; and neither Party is obligated to enter into any agreement as a result of any negotiations after the Proposed Purchase Notice is provided.

2.3.3 Scheduled Commercial Operation Date

The Scheduled Commercial Operation Date of the Project is shown in Exhibit A.

2.3.4 Requirements for Commercial Operation

Commercial Operation shall have been achieved when each of the following conditions have been satisfied or waived by the Parties ("**COD Conditions**"):

- a) The Required Percentage of the Expected Capacity has been installed, fully commissioned, and satisfactorily completed all startup testing;
- b) An independent engineer, that is a registered professional engineer in California, has provided a certificate with a PE stamp, certifying that testing pursuant to ASTM E2848-13 (2018) (Standard Test Method for Reporting Photovoltaic Non-Concentrator System Performance) over a data collection period of seven days or once the minimum quantity of data has been collected if such minimum quantity of data is collected over less than seven days has reported the Installed Capacity of the Project and such Installed Capacity is capable of delivering the Required Percentage of the Expected Capacity at the Delivery Point, in accordance with Prudent Utility Practice, on a reliable and a continuous basis without operator intervention, with the exception of normal daily shut-down during hours of insufficient solar irradiation, as demonstrated through a 168-hour continuous operation test of the Project (taking into account the photovoltaic nature of the Project);
- c) Seller has provided for and SMUD has successfully completed Pre-Commercial Operation Date Testing and Modifications as specified in the IA [Section 6 and Appendix G and Appendix H];
- d) Meteorological and any other site data as specified in IA Appendix H are capable of being received by SMUD and/or a third party for the purposes of creating a generation forecast;
- e) The Control Facilities (as defined in the IA) required pursuant to the IA are operational;
- f) Seller has provided documentation demonstrating a NERC Generator Owner (GO) registration and a NERC Generator Operator (GOP) registration are in progress or have completed for the Project, such as a screenshot of the registration request demonstrating that the pertinent NERC registration is in progress.
- g) Seller has provided official contact information, including direct telephone numbers and email addresses for the Project GOP's Control Center personnel and the corresponding Supervisor/Manager/Director responsible for the Control Center operations;
- h) A Permission To Operate (PTO) letter has been signed and executed by SMUD's Director of Grid Operations (consistent with Prudent Utility Practice and IA requirements), not to be unreasonably withheld, conditioned or delayed (it being understood and agreed that this condition shall be deemed to be achieved upon issuance of the permission to operate notice in accordance with Section 7 of the IA); and
- i) Seller has issued the COD Notice.

Seller shall issue a notice of Commercial Operation to SMUD when it believes that the Project has satisfied all COD Conditions (a "**COD Notice**"). A COD Notice shall include all necessary supporting documentation of the satisfaction or occurrence of all COD Conditions. SMUD shall have ten (10) days to review the COD Notice and raise any reasonable objections to Seller's satisfaction of any COD Conditions; provided, however, that Seller's COD Notice shall be deemed accepted by SMUD if SMUD fails to object within such time period. The Commercial Operation Date will be the date upon which Seller submits its COD Notice to SMUD, unless SMUD timely objects to Seller's evidence of the COD Conditions, then the Commercial

Operation Date will be the date upon which such evidence is provided to SMUD's reasonable satisfaction or is deemed to have been accepted by SMUD.

2.3.5 [Reserved]

2.3.6 Commercial Operation Date Confirmation Letter

Upon satisfaction of the COD Conditions, SMUD shall execute and then provide to Seller for execution, the "Commercial Operation Date Confirmation Letter." The fully executed versions shall be attached as Exhibit E to this Agreement.

2.3.7 Payment for Delay of Commercial Operation; Extension of Scheduled COD

If the Project fails to achieve Commercial Operation of the Required Percentage of the Expected Capacity, on or before the date that is three (3) months after the Scheduled Commercial Operation Date (as such date may be extended as provided herein) (the "**Delay LD Start Date**"), then Seller shall pay SMUD Delay Damages of \$74/MW/day for each day following the Delay LD Start Date for each MW or portion thereof by which the Capacity of the Project that has been commissioned and is capable of reliably delivering Energy and minimum functionality for such capacity consistent with Appendices G and H of the Interconnection Agreement (provided that SMUD's inability to receive data shall not be deemed the Project's inability to satisfy the minimum functionality requirement) to the Delivery Point is less than the full Expected Capacity, to be adjusted daily for as additional parts of the Project are commissioned and become capable of reliably delivering Energy to the Delivery Point, until the earlier of (i) Commercial Operation, or (ii) the Guaranteed Commercial Operation Date. The Parties agree that SMUD's receipt of Delay Damages shall be SMUD's sole and exclusive remedy for any default prior to the Commercial Operation Date, but shall not be construed as SMUD's declaration that an Event of Default or Termination Event has occurred under any provision of Article 8.

The Scheduled Commercial Operation Date shall be extended on a day-for day basis and Seller shall not owe SMUD Delay Damages for any Excusable Delay.

2.3.8 Payment for Deficit Damages

- j) If Seller achieves Commercial Operation with less than the Expected Capacity, then Seller shall use commercially reasonable efforts following the Commercial Operation Date to cause the remaining portion of the Expected Capacity to achieve Commercial Operation. If Seller has not caused the Capacity Shortfall to achieve Commercial Operation on or before one hundred eighty (180) days after the COD, then Seller shall pay SMUD damages equal to the Capacity Shortfall multiplied by \$320,000/MW ("**Deficit Damages**"). However, if the reason for the Capacity Shortfall is the result of permitting or local fire jurisdiction restrictions (e.g. reduced site size), not due to the breach of Seller, then Seller shall not be obligated to pay any Deficit Damages associated directly with the portion of Expected Capacity not built because of such restrictions. The Expected Annual Energy Production and Minimum Annual Energy Production will be reduced proportionately to account for the final Installed Capacity at the end of such one hundred eighty (180)-day period, and thereafter, the Capacity will be equal to such final amount for all purposes under this Agreement. The Parties agree that SMUD's receipt of Deficit Damages shall be SMUD's sole and exclusive remedy for failure to achieve Commercial Operation with less than one hundred percent (100%) of the Expected Capacity.

2.3.9 Cap on Damages.

Notwithstanding anything in this Agreement to the contrary, Delay Damages owed by Seller to SMUD hereunder together with any Deficit Damages shall not exceed the Development Security provided by Seller pursuant to Section 9.1.

2.4 Payment for Products Purchased

2.4.1 Pre-Commercial Energy Price

If the Pre-COD Index Price is greater than zero dollars (\$0) prior to the Commercial Operation Date, SMUD will pay (a) for Test Energy produced by the Project, by multiplying (i) 70% of the Pre-COD Index Price by (ii) the applicable hourly Energy quantity (in MWh) as measured by the Project Meter and (b) \$10 for each REC associated with the Test Energy that is confirmed to be a valid PCC1 REC and is transferred into Buyer's WREGIS subaccount. If the Pre-COD Index Price is less than zero dollars (\$0) prior to the Commercial Operation Date, SMUD will pay (A) for Test Energy produced by the Project by multiplying (1) 100% of the Pre-COD Index Price by (2) the applicable hourly Energy quantity (in MWh) as measured by the Project Meter, and (B) \$10 for each REC associated with the Test Energy that is confirmed to be a valid PCC1 REC and is transferred into Buyer's WREGIS subaccount.

2.4.2 Contract Price after Commercial Operation Date

- a) Subject to Sections 2.4.2(b) and 2.4.2(c), once the Project has achieved Commercial Operation, SMUD shall pay Seller the Monthly Settlement Amount.
- b) In the event that Seller fails to transfer to SMUD WREGIS Certificates associated with the amount of PV Energy delivered to the Delivery Point within one hundred ten (110) days after the end of the month that the Energy was generated and delivered to SMUD at the Delivery Point and the cause of such failure is due to Seller's actions or inactions inconsistent with its obligations under this Agreement ("**WREGIS Shortfall**"), then the Contract Price associated with such Energy previously delivered at the Delivery Point and paid for by SMUD will be discounted by an amount equal to the PCC1 REC Price. The "**PCC1 REC Price**" means the market value as determined by SMUD using commercially reasonable efforts for PCC1 RECs based on the average of 3 broker quotes for NP-15 Solar PV CEC RPS PCC1 RECs but in no event more than \$15/MWh. SMUD will provide notice to Seller of any WREGIS Shortfall, including SMUD's calculation and supporting evidence for the PCC1 REC Price and volume of Energy for which Seller owes SMUD a refund. Any WREGIS Shortfall will be presumed to be due to Seller's actions or inactions inconsistent with the requirements of this Agreement unless Seller demonstrates to SMUD's commercially reasonable satisfaction that such shortfall was not the result of Seller's actions or inactions inconsistent with its obligations under this Agreement. Any disputes with respect to the cause of a WREGIS Shortfall or the calculation of the PCC1 REC Price will be resolved pursuant to the provisions of Section 21. Seller shall provide a true-up payment to SMUD or SMUD may offset its payment to Seller in the next regular settlement for any amounts owed by Seller to SMUD pursuant to this Section 2.4.2(b). If Seller cures a WREGIS Shortfall within thirty (30) days after Seller has refunded the PCC1 REC Price to SMUD, then SMUD shall refund all or part of the true-up amounts associated with such cure to Seller in the next invoice after such WREGIS shortfall is cured. If, within the six (6) month period the REC is not delivered, Seller shall provide a true-up settlement to reflect the discounted Contract Price.

2.4.3 [Reserved]

2.4.4 Energy in Excess of Capacity

Seller shall not receive payment for Products delivered in any hour to SMUD in excess of the Maximum Hourly Energy Delivery.

2.4.5 System Losses

Energy produced by this Project, which is interconnected to the SMUD 69kV System, shall be measured using a SMUD Revenue Meter at the Point of Interconnection.

2.4.6 Title and Risk of Loss

Title to and risk of loss related to the Products produced from the Project shall transfer from Seller to SMUD at the Delivery Point. Except as provided hereunder, Seller warrants that it will deliver to SMUD all Products from the Project free and clear of all liens, security interests, claims and encumbrances, or any interest therein or thereto by any person arising prior to the Delivery Point.

2.4.7 Settlement Payments

- a) Following the end of each calendar month ("**Settlement Period**"), Seller shall deliver to SMUD Seller's determination of Deemed Delivered Energy within ten (10) calendar days after the end of such Settlement Period. SMUD shall deliver to Seller a settlement checkout statement which shall include (i) a calculation of the Monthly Settlement Amount and (ii) a summary of Energy produced by the Project as measured by the Project Meter in each hour of the Settlement Period by the 25th of each month. SMUD shall pay the Monthly Settlement Amount with respect to such month by the last day of the month, subject to the provisions of Section 2.4.7(b).
- b) A Party may in good faith, dispute the correctness or absence of any settlement or adjustment to a settlement rendered under this Agreement or adjust any settlement for any arithmetic or computational error within twenty-four (24) months of the end of the Contract Year of which the subject settlement was rendered. In the event a settlement or portion thereof, or any other claim or adjustment arising hereunder is disputed, payment of the undisputed portion of the settlement shall be required to be made when due in accordance with this Section 2.4.7, with notice of the objection given to the Party issuing such settlement. Any billing dispute or billing adjustment shall be in writing and shall state the basis for such dispute or adjustment. Payment of the disputed amount shall not be required until the dispute is resolved, however the Party in receipt of the dispute notice is required to respond to such dispute notice with reasonable supporting documentation no later than ten (10) Business Days following delivery of such notice. If it is determined that an adjustment to the settlement is appropriate or an underpayment was made, then such payment shall be required to be made within ten (10) Business Days of such determination along with interest accrued at the Interest Rate from and including the due date to but excluding the date paid. Overpayments by a Party shall, at the option of the Party making such overpayment, be returned upon request or deducted by the Party receiving such overpayment from subsequent payments, with interest accrued at the Interest Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment. Any dispute with respect to a settlement is waived unless the other Party is notified in accordance with this Section 2.4.7 within twenty-four (24)

months after the settlement is rendered or any specific adjustment to the settlement is made.

SMUD shall have the right, but not the obligation, to read the Project's meter on a daily basis.

2.4.8 Production Guarantee (PG); Project Performance; PG Damages

Seller shall make any necessary and commercially reasonable repairs with the intent of optimizing (to the extent commercially reasonable) the availability of Energy from the Project to SMUD.

Within thirty (30) days after the end of each Contract Year, Seller shall submit (i) its calculation of the AAEP for the previous Contract Year based on Seller's records related to Project generation, Dispatch Down Periods, SMUD Curtailment, Force Majeure and any SMUD breach and (ii) an annual report of actual annual solar insolation data for SMUD's review and use in calculating the AAEP and the Minimum Annual Energy Production for the previous Measurement Period.

If, at the end of any Measurement Period, the sum of the Adjusted AEP amounts for the two Contract Years in the Measurement Period is less than the AMAEP for such Measurement Period (such shortfall, if any, the "**PG Shortfall**"), then Seller shall pay SMUD PG Damages for each MWh of PG Shortfall for such Measurement Period. The "**PG Damages**" shall equal the market price for shortfall energy at Index Price and RECs as determined by SMUD using commercially reasonable efforts based on the average of three broker quotes for NP-15 Solar PV CEC RPS PCC1 RECs but in no event shall the PG Damages rate exceed the Contract Price.

The PG Damages provided above shall be Seller's sole obligation and SMUD's sole remedy in the event of a failure by Seller to meet the Measurement Period production guarantee under this Agreement.

3. CERTIFICATION AS AN ELIGIBLE RENEWABLE ENERGY RESOURCE

3.1 CEC RPS and Green-e Certifications

Subject to Section 3.4, SMUD requires that all renewable energy sold under this Agreement will meet the RPS requirements. At its own expense but subject to Section 3.4, Seller shall comply with the following:

- a) Commensurate with the Commercial Operation Date or as soon as reasonably practicable thereafter, Seller shall also provide a completed Green-e generator registration and attestation form (under the Green-e Standard) to SMUD and the Center for Resource Solutions, and Seller shall provide evidence of Green-e eligibility.
- b) Seller shall file an application with the CEC for RPS Pre-Certification as soon as possible after the Effective Date and shall obtain CEC Pre-Certification no later than the start of construction of the Project.
- c) In no event later than thirty (30) business days after the Commercial Operation Date (COD), Seller shall file for full RPS Certification of the Project with the CEC.
- d) Seller shall respond to inquiries from the CEC related to its applications for CEC Pre-Certification and RPS Certification within five (5) Business Days of receipt of such inquiry.
- e) Except as otherwise provided in Section 3.4, Seller shall maintain such RPS Certification throughout the Delivery Term at its own expense.

- f) Seller shall ensure that throughout the Delivery Term, Energy and Environmental Attributes from the Project delivered to the Delivery Point meet the criteria of California Public Utilities Code 399.16(b)(1); and ensure that the electricity and RECs from the Project are bundled according to the applicable CEC RPSEligibility Guidebook.

3.2 Environmental Attribute Delivery Obligation

Seller shall sell and deliver, and SMUD shall receive and purchase from Seller, all rights, title, and interest in all Environmental Attributes associated with Energy produced by the Project and delivered to SMUD at the Delivery Point whether now existing or that hereafter come into existence prior to and including the Delivery Term. Seller agrees to sell to SMUD all such Environmental Attributes to the fullest extent allowable by applicable Law, and convey the same to SMUD in accordance with the procedures in Exhibit H. Seller warrants that all Environmental Attributes provided to SMUD shall be free and clear of all liens, security interests, claims and encumbrances.

3.3 WREGIS Registration

Documentation of Environmental Attributes associated with the Energy produced under this Agreement shall be tracked through WREGIS. Seller shall assign rights to register the Project in WREGIS to SMUD, such that RECs are deposited directly into SMUD's WREGIS account. Subject to Exhibit H and Section 3.4, Seller shall be responsible for all WREGIS costs and fees associated with the issuance/creation of WREGIS RECs for the Project, and SMUD shall be responsible for any fees associated with the transfer and/or retirement of such WREGIS RECs to SMUD. WREGIS REC identification information shall support both CEC RPS and Green-e Standard REC retirements. At least forty-five (45) days before the end of the Term, or as soon as practicable before the date of any early termination of this Agreement before the end of the Term, SMUD shall take all actions necessary to terminate the assignment of registration rights in WREGIS associated with the Project as of the last day of the Term.

3.4 Change in Law

3.4.1 The Parties agree that expenditures to comply with the requirements of this Agreement ("**Compliance Expenditures**") that Seller shall be required to bear during the term of this Agreement shall be capped at a total of \$25,000 per Contract Year and \$375,000 in the aggregate over the Term ("**Compliance Expenditure Cap**").

3.4.2 If a change in Law occurs after the Effective Date that affects Seller's compliance with its obligations under this Section 3, Seller shall not be in breach of such obligations if Seller has used commercially reasonable efforts to comply with such change in Law as it pertains to such obligations. For purposes of this Section 3.4.2, the term "commercially reasonable efforts" shall not require additional out-of-pocket expenditures in the aggregate in excess of the Compliance Expenditure Cap in complying with the changes in Law described in this Section 3 unless SMUD and Seller have agreed in writing for SMUD to reimburse Seller for or to pay directly such excess expenditures.

3.4.3 Within thirty (30) calendar days after the end of each calendar quarter during the Term, Seller shall provide SMUD with a report describing the Compliance Expenditures that Seller incurred during that calendar quarter and the total Compliance Expenditures incurred during the Contract Year that includes such calendar quarter. Prior to incurring Compliance Expenditures that are anticipated to exceed \$25,000, Seller shall notify SMUD of the expected Compliance Expenditures. Following such notice, the Parties shall attempt to agree to limit such Compliance Expenditures to the extent practicable; provided, however, that nothing herein limits Seller's right to incur Compliance Expenditures that Seller believes in good faith must be incurred for Seller to comply with its obligations under this Agreement, as long as the above notification provisions are met. If Seller determines that costs in excess of the Compliance Expenditure Cap will have to be incurred, then

Seller shall notify SMUD and provide documentation and calculations to support the expected excess costs. SMUD may then: (1) approve the expected excess costs and notify Seller of such approval, and Seller shall comply upon receipt of notice of SMUD's approval and SMUD's payment for the expected excess costs (such costs, "**Accepted Compliance Expenditures**"); or (2) elect not to pay Seller for the expected excess costs and notify Seller of such decision, in which case this Agreement shall continue in full force and effect and Seller shall continue to be excused from performing any obligation that causes, or would cause, the incurrence of such Compliance Expenditures in excess of the Compliance Expenditure Cap. SMUD is not required to reimburse Seller for any Compliance Expenditures unless and until SMUD agrees to the expected Compliance Expenditures in excess of the Compliance Expenditure Cap. To the extent that SMUD has not agreed to reimburse, or has not reimbursed, Seller for any Accepted Compliance Expenditures, then SMUD is deemed to have waived Seller's obligation that causes, or would cause, the incurrence of such Compliance Expenditures in excess of the Compliance Expenditure Cap and (x) Seller will not be in default under this Agreement for failure to satisfy any such obligation and (y) payments to Seller under this Agreement during the entirety of the Delivery Term will not decrease as a result of such change in Law and will be maintained as if all such obligations were taken.

3.5 Additional Evidence of Environmental Attribute Conveyance

At SMUD's reasonable request, Seller shall provide additional reasonable evidence to SMUD or to third parties of SMUD's right, title, and interest in Environmental Attributes and information with respect to Environmental Attributes; provided that no such request may impose any material (non-administrative) additional costs on the Seller.

3.6 Modification of Environmental Attribute Reporting and Conveyance Procedure

The Parties shall revise Exhibit H as appropriate and issue a new Exhibit H which shall then become part of the Agreement, subject to Seller acceptance of any changes impacting costs, in order to reflect changes necessary in the Environmental Attribute conveyance procedure for SMUD to be able to receive and report the Environmental Attributes purchased under the Agreement as belonging to SMUD, in the event that:

- a) WREGIS changes the WREGIS Operating Rules after the Effective Date or applies the WREGIS Operating Rules in a manner inconsistent with Exhibit H after the Effective Date; or,
- b) WREGIS is replaced as the primary method that SMUD uses for conveyance of Environmental Attributes, or additional methods to convey all Environmental Attributes are required.

In no event will such revised Exhibit H cause Seller to incur any category of cost for which it is not already otherwise responsible under this Agreement, without prior notice by SMUD and agreement of the Parties as to the appropriateness of such cost belonging with the Seller and subject to Section 3.4.

3.7 Reporting of Ownership of Environmental Attributes

Seller shall not report to any person or entity that the Environmental Attributes sold and conveyed hereunder to SMUD belong to anyone other than SMUD, and SMUD may report under any such program that such Environmental Attributes purchased hereunder belong to SMUD.

3.8 Greenhouse Gas (GHG) Emissions

Seller shall bear all liability for reporting any and all GHG emissions from the Project, and for any compliance obligations under federal, state (including AB 32) and local laws for such emissions.

4. CONVEYANCE OF CAPACITY ATTRIBUTES

4.1 Conveyance of Capacity Attributes

Seller shall provide to SMUD any attestation SMUD requires in order for SMUD to show evidence that it has procured the Capacity Attributes associated with the Project in accordance with the procedure in Exhibit F. At SMUD's reasonable request, provided that no such request may impose any material (non-administrative) additional costs on the Seller, Seller shall execute such documents and instruments as may be reasonably required to affect recognition and transfer of the Capacity Attributes.

4.2 Reporting of Ownership of Capacity Attributes

Seller shall not report to any person or entity that the Capacity Attributes sold and conveyed hereunder to SMUD belong to anyone other than SMUD, and SMUD may report under any such program that such Capacity Attributes purchased hereunder belong to it.

4.3 Modification of Capacity Attribute Conveyance Procedure

SMUD may revise Exhibit F as appropriate, give written notice to Seller regarding the revision, and issue a new Exhibit F which shall then become part of the Agreement, provided that no such modification may impose any material (non-administrative) additional costs or obligations on the Seller, or reduce Seller's compensation hereunder, in order to reflect changes necessary in the Capacity Attribute conveyance procedure for SMUD to be able to receive and report the Capacity Attributes purchased under the Agreement as belonging to SMUD.

In no event will such revised Exhibit F cause Seller to incur any category of cost for which it is not already otherwise responsible under this Agreement without prior notice by SMUD and agreement of the Parties as to the appropriateness of such cost belonging with the Seller.

4.4 Energy Market Participation

The Parties acknowledge and agree that as of the date hereof, SMUD is participating in the EIM and/or other energy markets. The Parties have agreed to a structure in this Agreement to facilitate SMUD's use of the Project to participate in such markets. Notwithstanding, SMUD's joining or continued participation in such markets shall not require Seller to perform any additional measures or incur any additional or increased cost, liability or obligation, in each case other than what Seller is already otherwise expressly obligated under this Agreement, unless compensated by SMUD. If in the future, market rules or policies change, then without limiting Seller's and SMUD's rights under Section 3.4, the Parties shall meet and confer to discuss the new market rules and whether updates to the scheduling, settlements, or other procedures are required and to preserve the economic "benefit of the bargain" to both Parties to this Agreement.

5. INTERCONNECTION; TELEMETERING

5.1 Interconnection Agreement

Seller shall execute a IA with SMUD at the same time as execution of this Agreement. The IA specifies the obligations of the parties thereto with respect to the construction, operation and maintenance of certain interconnection facilities.

5.2 Backup Station Service

Backup Station Service for the Project shall be governed by SMUD's rates, rules, and regulations.

5.3 No Additional Loads

Seller shall not connect any loads not associated with Integral Station Service Loads at the location of the Project in a manner that would reduce the Energy provided from the Project to SMUD hereunder. Seller shall obtain separate retail electric service under existing SMUD tariffs for the service of any such additional loads.

5.4 Telemetering

The Project will require telemetering equipment connected to SMUD's energy management system ("EMS") including the automated dispatch system (ADS) as provided in IA Appendix H, Data Points List.

6. PERMITTING; STANDARD OF CARE; OPERATIONS; CURTAILMENT

6.1 Permitting

Seller shall be responsible for securing all land use and building permits and any other regulatory approvals required for the Project, including but not limited to those required for the interconnection facilities. Milestones for permitting shall be provided to the Seller to support the expected construction schedule for all of the facilities to meet the COD and Seller shall be responsible for ensuring milestones are met.

6.2 Standard of Care

Seller shall pay and be responsible for designing, installing, operating, and maintaining the Project in accordance with all applicable Laws and Prudent Utility Practice.

Seller shall: (a) operate and maintain the Project in a safe manner in accordance with Prudent Utility Practice and (b) maintain any governmental authorizations and permits required for the construction and operation thereof.

SMUD shall: (a) operate and maintain its 69kV System in a safe manner in accordance with Prudent Utility Practice and all applicable Laws, as such Laws may be amended from time to time; and (b) maintain any governmental authorizations and permits required for the construction and operation thereof.

Seller shall provide SMUD a mitigation plan, which shall include a grazing plan developed in consultation with SMUD specifying grazing as a method of vegetation management at the Project site.

6.3 Curtailment - Notice Following Outage or Curtailment

In the monthly settlements process, following any outage or any curtailment SMUD will provide Seller a notice describing whether such curtailment was due to a Dispatch Down Instruction (uncompensated in accordance with Section 6.6) versus SMUD Curtailment (compensated in accordance with Section 6.7), SMUD shall provide such additional information concerning any curtailment claimed to be due to Dispatch Down Instruction as Seller may reasonably request.

6.4 SMUD Performance Excuse

SMUD shall not be obligated to accept or pay for Energy produced by or Capacity provided from the Project during a Force Majeure event that prevents SMUD's ability to accept Energy from the Project, unless the failure to accept such Energy is also a curtailment under Sections 6.6 or 6.7, in which case the terms of Sections 6.6 or 6.7, as applicable, shall apply.

6.5 Dispatchability

Seller shall respond to Dispatch signals from SMUD as required pursuant to Dispatch Down Instructions in accordance with Section 6.6 or SMUD Curtailments in accordance with Section 6.7. Dispatch signals issued pursuant to Section 6.6 or 6.7 are to curtail the generation or deliveries from the Project or to terminate (in whole or in part) any such curtailment. SMUD's communication to Seller in advance of a curtailment need not be greater than that required to support the dispatch interval in the Real-Time Market.

6.5.1 SMUD will have the ability to Dispatch the output of the Project and to curtail the Project in full or in part from 0% to 100% of nominal capability up to the Installed Capacity. Seller shall install a Plant Controller with the ability to accept a control signal from SMUD's Energy Management System (EMS) through a local SMUD remote terminal unit (RTU) to curtail the Project. The Plant Controller shall run in mutually exclusive local or remote control modes. In local control mode, controller modes and setpoints can be selected by an operator from the plant SCADA. In remote control mode, controller modes and setpoints are selected via the SMUD remote terminal unit. Transition between local and remote modes shall be initiated by the SMUD operator via SMUD's EMS. In remote control mode the controller shall track remote setpoints and provide seamless transitioning from remote to local control mode. The plant controller shall be capable of independent and combined control of each of two 25 MW solar fields to provide SMUD the ability to curtail one, or the other, or both banks from 0% to 100% of Pmax simultaneously.]

6.5.2 Active power ramp rate control shall provide for the transition between generation levels at a controlled ramp rate. The controller shall support a power generation ramp rate in compliance with IA requirements (currently 5% to 20% of Pmax per minute).

6.5.3 Dispatchability control accuracy shall be better than a +/- 2 MW average over a five (5) minute interval. Seller shall provide SMUD evidence of this accuracy upon SMUD's request.

6.5.4 Any documented costs, penalties, and charges reasonably incurred by SMUD due to Seller's failure to respond to Dispatch signals (including Dispatch Down Instruction and SMUD Curtailment) in accordance with the terms and conditions of this Agreement shall be the responsibility of Seller; provided that SMUD shall provide Seller with notice of the incurrence of any such documented costs, penalties and/or charges reasonably incurred by SMUD in the next relevant settlement period .

6.6 Dispatch Down Instruction

6.6.1 SMUD may require Seller to interrupt or reduce deliveries of Energy pursuant to a Dispatch Down Instruction. SMUD will not compensate Seller for Deemed Delivered Energy during a Dispatch Down Period.

6.6.2 In the event of a Dispatch Down Instruction, SMUD shall, whenever possible, give Seller reasonable notice of the possibility that the interruption or reduction of deliveries may be required, and shall use commercially reasonable efforts to minimize the impact thereon on Project operations and to minimize the duration of the Dispatch Down Period.

6.6.3 Seller shall have the right, upon reasonable notice, to examine SMUD's records relating to any Dispatch Down Instructions to determine whether any such curtailment meets the criteria set forth in the definition of "Dispatch Down Instruction".

6.7 SMUD Curtailment

6.7.1 Subject to the remainder of this Section 6.7, SMUD shall have the right to instruct Seller to curtail production on an economic basis.

6.7.2 SMUD will pay the Seller the Contract Price for Energy that would have been generated had it not been curtailed due to SMUD Curtailments.

6.7.3 [Reserved]

6.7.4 SMUD will pay Seller the Contract Price for Deemed Delivered Energy due to a SMUD Curtailment, or a breach by SMUD of this Agreement or the Interconnection Agreement. Deemed Delivered Energy due to SMUD Curtailment or a breach by SMUD of this Agreement or the Interconnection Agreement will be included in the calculation of that month's payment to Seller for Energy generated, as described by Exhibit K – Deemed Delivered Energy Calculation Procedure. For the avoidance of doubt, any curtailment as a result of SMUD's economic bidding shall be deemed a SMUD Curtailment.

6.8 Determination of Deemed Delivered Energy

Deemed Delivered Energy shall be determined using (i) the amount of energy forecasted in the final VER Forecast for the delivery period, or (ii) the result of the equation below calculated and provided by Seller, as described in Exhibit K, to reflect the potential generation from the Project, and such calculation shall be validated by SMUD. The Parties agree that the VER Forecast shall be the primary determinant establishing Deemed Delivered Energy. In the event the VER Forecast is not available or is otherwise unsuitable as determined by mutual consent, then the equation below shall be used.

$$E_{Deemed} = E_{Scaled} * (1 - D) * EA - E_{Measured}$$

Where:

- (a) D = Degradation of 0.5%/year beginning on the first day of the second full Contract Year of this Agreement, and annually thereafter;
- (b) EA = Effective availability of 99%; provided that SMUD reserves the right to request from Seller and review data related to a particular Contract Year, and Seller agrees to adjustment of EA to an appropriate value for any Contract Year in which an unusual generation pattern results in a reduced level of generation.
- (c) E_{Deemed} = Deemed Delivered Energy (kWh);
- (d) $E_{Measured}$ = Actual Energy measured at the Project Meter in kWh

$$(e) E_{Scaled} = \sum_{i=1}^n \left[\frac{POA_{Measured-i}}{POA_{Modeled-i}} * E_{Modeled-i} \right] \text{ limited to Maximum Hourly Energy Delivery kWh for any given hour.}$$

Where:

- i. $E_{Modeled-i}$ = AC energy produced by the PVsyst clear sky model as shown in the Clear Sky Model Report Parameters (kWh), as adjusted each year to reflect differences in local time as a result of daylight savings time;

- ii. $POA_{Measured-i}$ = The average of the measured plane-of-array irradiance for the i^{th} hour (W/m^2);
- iii. $POA_{Modeled-i}$ = Modeled plane-of-array irradiance produced by the PVsyst clear sky model for the i^{th} hour (W/m^2) as shown in the Clear Sky Model Report, as adjusted each year to reflect differences in local time as a result of daylight savings time.
- iv. Seller must provide PVsyst clear sky modeled data, with 5 minute granularity, for POA irradiance and AC energy used in calculation to SMUD each year

Note that Parties may mutually agree to select alternate model report to provide more accurate settlement data. The alternative models include, without limitation, an AWS True Power or VER Forecast Model.

7. SCHEDULING AND FORECASTING; OUTAGES; ACCESS RIGHTS

7.1 Scheduling and Forecasting

The Project is located within the SMUD Service Territory, and SMUD will make its own forecasts or contract with a third party for forecasting of Project Energy production for use in its Scheduling process. SMUD shall (1) be responsible for all costs, charges and penalties associated with SMUD's bidding and scheduling rights under this Agreement for scheduling of the Project's Products, and any SMUD Curtailment and all imbalance energy costs, charges and penalties and (2) be entitled to all revenues assessed or provided associated with SMUD's bidding and scheduling of the Project's Products, and any SMUD Curtailment.

Seller shall comply with Exhibit G – Available Capacity Notification Requirements and Outage Notification Procedure.

7.2 Scheduling Coordinator; CAISO Settlements

SMUD shall be the Scheduling Coordinator for scheduling services for the Project, and for both the delivery and receipt of the Product at the Delivery Point, or contract with a third party for Scheduling Coordinator responsibilities (any such third party, a "**Third-Party SC**"). Seller shall pay SMUD an annual fee of \$14,000 with a 2% annual escalator factor during the Term for Scheduling coordination and settlement service. The Scheduling Coordinator requirements include SMUD's EIM or other energy market resource portfolio. As between Seller and SMUD, SMUD is responsible for all acts and omissions of any Third-Party SC and for all cost, charges and liabilities incurred by Third-Party SC to the same extent that SMUD would be responsible under this Agreement for such acts, omissions, costs, charges and liabilities if taken, omitted or incurred by SMUD directly. Seller shall have no liability to a Third-Party SC for any reason under this Agreement. SMUD (as the Scheduling Coordinator) shall be responsible for all settlement functions with the CAISO related to the Project, and shall submit Bids to the CAISO in accordance with this Agreement, the applicable CAISO Tariff, protocols and scheduling practices for Product on a day-ahead, hour-ahead, fifteen-minute market, real-time or other market basis that may develop after the Effective Date, as determined by Buyer consistent with the CAISO Tariff.

7.3 Energy Imbalance Market – EIM or other

SMUD participates in the EIM, and the Parties acknowledge that the Project will be an EIM Participating Resource and such participation will incur imbalance deviation charges. Extensions of the EIM into the Day-Ahead Market may result in additional imbalance deviations, the responsibility for which shall be governed by Section 7.1

7.4 Seller Available Capacity Notification Requirements; Penalties

Seller shall comply with the Available Capacity notification requirements as defined in Exhibit G as it relates to a schedule of the hourly Available Capacity. If in any hour of any month during the Delivery Term both (a) Seller fails to comply with the notification procedures requirements, and (b) the sum of Energy Deviations (defined below) for each of the 12 Settlement Intervals (defined below) in that hour exceed the Performance Tolerance Band (defined below), then Seller is liable for scheduling penalties ("**Scheduling Penalties**") equal to the greater of (i) one hundred fifty percent (150%) of the Contract Price (expressed in \$ / kWh) or (ii) the absolute value of the Real-Time Price, in each case for each kWh of Energy Deviation outside the Performance Tolerance Band. The term "**Energy Deviation**" means the absolute value of the difference, in kWh, in any Settlement Interval between (i) the final accepted Bid submitted for the Project for the hour of the Settlement Interval divided by the number of Settlement Intervals in the hour; and (ii) energy actually delivered from the Project, measured in kWh, such Settlement Interval. The term "**Performance Tolerance Band**" means, in kWh, is equal to: (i) three percent (3%) times; (ii) forecasted Available Capacity times; (iii) one (1) hour; and (c) the term "**Settlement Interval**" means any one of the twelve (12) five (5) minute time intervals beginning on any hour and ending on the next hour.

7.5 Planned Outages

For the purposes of this Agreement a maintenance outage shall constitute a Planned Outage. Planned Outages may only be taken upon thirty (30) days written notice to SMUD. Seller shall use commercially reasonable efforts to not schedule or take any Planned Outages from 6:00 a.m. through 10:00 p.m. Pacific Prevailing Time during the months of May through September unless required by Prudent Utility Practice or applicable Law. Seller shall use commercially reasonable efforts in accordance with Prudent Utility Practice to minimize the frequency and actual duration of Planned Outages and optimize the availability of Energy from the Project. Seller shall provide Planned Outage notifications in accordance with the Outage Notification Procedure detailed in Exhibit G.

7.6 Forced Outages

Seller shall provide Forced Outage notifications in accordance with the Outage Notification Procedures detailed in Exhibit G and Exhibit I, which notification shall include the expected duration of the Forced Outage and the estimated time of return ("**ETR**") of the Project. When Seller desires to return the Project to service, Seller shall notify SMUD of the same. SMUD shall use commercially reasonable efforts to accommodate the return to service as soon as practicable after such request; provided that SMUD shall permit the Project to return to service no later than the ETR. If Seller's notice to return the Project to service occurs prior to the ETR, the following will occur: (i) SMUD will permit the Project to return to service, or (ii) if SMUD is not able to accommodate all or a portion of the Project's Energy due to SMUD's scheduling of replacement energy prior to the ETR, SMUD may deny or reduce such Energy until the occurrence of the ETR on a non-compensable basis, or (iii) if SMUD is not able to accommodate all or a portion of the Project's Energy due to SMUD's scheduling of replacement energy or any other economic reason at or following the ETR, SMUD may curtail such Energy and such curtailment shall be considered a SMUD Curtailment. However, notwithstanding the prior sentence, SMUD may require Seller to interrupt or reduce deliveries of Energy pursuant to a Dispatch Down Instruction due to an event or circumstance at or following the ETR.

7.7 Modification of Outage Notification Procedure

Upon mutual consent of both Parties, SMUD shall modify Exhibit G to reflect changes necessary in the Outage Notification Procedure, give written notice to Seller regarding the revision, and issue a new Exhibit G which shall then become part of the Agreement to reflect changes in the Outage Notification Procedure.

7.8 Access Rights

SMUD, its authorized agents, employees and inspectors, upon advance notice to Seller and at their own cost and expense and subject to Section 12.2, shall have the right to reasonably, periodically visit the Project site and inspect the Project in accordance with the Definitive Agreements.

8. TERM, TERMINATION EVENT AND TERMINATION

8.1 Term

The term of this Agreement (the “**Term**”) shall commence upon the last execution by the duly authorized representatives of each of SMUD and Seller, and shall remain in effect until the conclusion of the Delivery Term, unless terminated sooner pursuant to the terms of this Agreement. All indemnity rights shall survive the termination of this Agreement for twelve (12) months.

8.2 Events of Default; Remedies

8.2.1 An “**Event of Default**” shall mean, with respect to a Party (a “**Defaulting Party**”), the occurrence of any of the following:

- a) the Defaulting Party fails to make, when due, any payment required under this Agreement if such failure is not remedied within ten (10) calendar days after receipt of notice from the Non-Defaulting Party;
- b) any representation or warranty made by such Defaulting Party herein is false or misleading in any material respect when made, and such failure is not cured within thirty (30) calendar days after receipt of notice from the Non-Defaulting Party, or such longer period not to exceed sixty (60) days if the failure is not capable of being cured within such thirty (30) days with the exercise of reasonable diligence, so long as the Defaulting Party has commenced and is diligently pursuing a cure during such initial thirty (30)-day period;
- c) the Defaulting Party fails to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate default under this Section 8.2.1 or otherwise has a specific remedy provided in this Agreement), if such failure is not remedied within thirty (30) days of receipt of notice from the Non-Defaulting Party, or such longer period not to exceed ninety (90) days if the failure is not capable of being cured within such thirty (30) days with the exercise of reasonable diligence, so long as the Defaulting Party has commenced and is diligently pursuing a cure during such initial thirty (30)-day period; and/or
- d) the Defaulting Party becomes Bankrupt.

8.2.2 Remedies

- a) Termination for Default. Except as otherwise expressly provided in this Agreement, an Event of Default by a Defaulting Party, the other Party (the “**Non-Defaulting Party**”) shall have the right to (a) terminate this Agreement by providing notice of such termination to the Defaulting Party, which termination shall be effective on a day no earlier than five (5) days after such notice is deemed to be received (as provided in Section 15) and no later than twenty (20) days after such notice is deemed to be received (as provided in Section 15) and, except as provided in Section 8.3 to the contrary, the Defaulting Party shall pay the Non-Defaulting Party a Termination Payment calculated in accordance with Section 8.5, or (b) pursue any other remedies available at law or in equity, including where

appropriate, specific performance or injunctive relief, except to the extent such remedies are expressly limited under this Agreement. If the Non-Defaulting Party fails to terminate this Agreement under clause (a) of this paragraph by notice to the Defaulting Party within six (6) months following the Non-Defaulting Party's declaration of an Event of Default, then the Non-Defaulting Party shall be deemed to have waived its rights to terminate this Agreement pursuant to clause (a) of this paragraph with respect to such Event of Default. If the Non-Defaulting Party elects to terminate this Agreement under clause (a) of this paragraph, then the sole and exclusive remedy available to the Non-Defaulting Party shall be the Termination Payment calculated in accordance with Section 8.5. Notwithstanding any provision herein to the contrary, if Seller commits an Event of Default under this Agreement prior to the Commercial Operation Date, SMUD's sole and exclusive remedy in respect of such Event of Default shall be to terminate this Agreement and retain the Development Security then-held by SMUD pursuant to Section 9.1 (less any Delay Damages already paid by Seller).

b) Suspension.

- i) Duty to Mitigate Damages. In addition to (and without limiting) the remedies for an Event of Default otherwise available at law or in equity, during the existence of an Event of Default, the Non-Defaulting Party shall use commercially reasonable efforts to mitigate the damages incurred as a result of such Event of Default.
 - ii) Right to Suspend. In addition, during the existence of an Event of Default, the Non-Defaulting Party may, by notice to the Defaulting Party, suspend (the date of such notice, the "**Suspension Date**") in whole or in part its payment (excluding accrued payment obligations prior to such Suspension Date) or performance under this Agreement.
 - iii) Responsibility for damages during Suspension. Such suspension shall not relieve the Defaulting Party of its obligations to pay damages arising out of such Event of Default.
 - iv) Resumption of Performance Following Suspension. After the Defaulting Party's cure of such Event of Default, and provided there is no other Event of Default by such Defaulting Party then occurring and this Agreement has not been terminated, the Non-Defaulting Party will resume performance of its obligations under this Agreement.
- c) Termination or Suspension without Cause. Except for the rights to terminate and suspend expressly set forth in this Agreement, neither Party shall have any right to terminate this Agreement or suspend its performance for any reason.

8.3 Termination Rights

SMUD shall have the right but not the obligation to terminate this Agreement if any of the following occur, each of which is a "**Termination Event**":

8.3.1 Failure to achieve Commercial Operation

In the event Seller fails to achieve Commercial Operation of the Required Percentage of the Expected Capacity by the Guaranteed COD, as that date may be extended by Seller in accordance with the terms and conditions, then SMUD shall have the right, but not the obligation, to terminate this Agreement. To exercise this right, SMUD shall provide Seller with a ten (10) day advance written notice. If Seller achieves

the Commercial Operation Date prior to the end of the ten (10) day notice period, SMUD shall not exercise its right to terminate the Agreement. This deadline shall be extended on a day for day basis if Seller's failure to achieve Commercial Operation in the designated timeframe was caused by an Excusable Delay.

8.3.2 Failure to sell or deliver Energy

If, after the Commercial Operation Date, Seller has not sold or delivered Energy and Environmental Attributes from the Project to SMUD for a period of twelve (12) consecutive months, except due to Force Majeure events, Dispatch Down Periods, SMUD Curtailments and/or SMUD breaches that prevents or excuses Seller from delivering Energy at the Delivery Point, then SMUD shall have the right to terminate this Agreement.

8.3.3 Failure to meet the Minimum Annual Energy Production

If the Adjusted AEP is less than ninety percent (90%) of the Adjusted MAEP, as decreased by one half of one percent ($MAEP \times .005$) beginning on the first day of the second full Contract Year of this Agreement, and annually thereafter, and as adjusted for the Actual Annual Solar Insolation, for any two consecutive Contract Years.

Notice of such termination for this Event of Default shall be given in writing a minimum of sixty (60) calendar days prior to the effectiveness of such termination and within one hundred twenty (120) calendar days following the end of the second of the applicable two Contract Years. SMUD's ability to exercise such termination right in respect of any two consecutive Contract Years shall be deferred for up to one year if Seller has reasonably demonstrated to SMUD, and is actively implementing in good faith, a cure plan for any such failure as described below.

A cure plan may include, but is not limited to, the addition of solar modules to the system at Seller's sole expense. A cure plan that reasonably shows the Project's ability to achieve 90% of the Adjusted MAEP in that current two consecutive Contract Year period (i.e. the cure plan Contract Year and the preceding Contract Year) must be submitted to SMUD in writing within fifteen (15) calendar days of Seller's receipt of SMUD's notice of termination. SMUD shall then have fifteen (15) calendar days after receipt of the cure plan to inform Seller in writing of any reasonable objections to the cure plan. SMUD's non-objection to, or requested modifications to, Seller's cure plan does not waive SMUD's termination rights in the event that the cure plan is not ultimately effective to cause the Adjusted MAEP for the two consecutive Contract Year period of which it is a part to equal or exceed 90%. Any disagreements regarding the cure plan will be resolved in accordance with the dispute resolution provisions in Section 21.

8.3.4 Failure to Comply with RPS Covenants

Except as otherwise provided in Section 3.4, in which case, for the avoidance of doubt there will be no termination right if the cause of such non-compliance is SMUD's choice to not pay costs in excess of the Compliance Expenditure Cap:

- a) Seller fails to obtain RPS Certification for the Project within six (6) months after COD, except if failure to obtain RPS Certification within this six (6) month period is not due to Seller's action or inaction, then Seller shall be provided a day-for-day delay right to obtain RPS Certification up to an additional of six (6) months for a total of no more that twelve (12) months after COD as long as such day-for-day delay is not due to Seller's action or inaction. Seller shall present to SMUD a reasonable plan of action laying out those steps that Seller shall take in order to obtain such certification as quickly as possible, for acceptance by SMUD, which acceptance shall not be unreasonably withheld; or
- b) Subject to Section 3.4, Seller's failure to maintain RPS Certification for the Project, if such failure is not cured within thirty (30) days after written notice; provided that

during any period where Seller has not maintained RPS Certification for the Project, whether before or after written notice, SMUD shall not be obligated to purchase any Energy or other Products from Seller hereunder, but Seller may sell such Energy and other Products to third parties.

8.4 Declaration of a Termination Event

If a Termination Event has occurred, SMUD shall have the right to: (a) send notice, designating a day, no earlier than five (5) days after such notice is deemed to be received (as provided in Section 15) and no later than twenty (20) days after such notice is deemed to be received (as provided in Section 15) (unless, in each case, a longer notice period is set forth in Section 8.3), as an early termination date of this Agreement ("**Early Termination Date**") unless the Parties have agreed to resolve the circumstances giving rise to the Termination Event; (b) except for a termination pursuant to Section 8.3.1 or as elsewhere provided in this Agreement to the contrary, calculate the Termination Payment in accordance with Section 8.5 owed in connection with such Termination Event; and (c) terminate this Agreement and end the Delivery Term effective as of the Early Termination Date. With respect to any Termination Event prior to the Commercial Operation Date, including pursuant to Section 8.3.1, Seller's sole and exclusive liability and SMUD's sole and exclusive remedy aside from terminating this Agreement shall be the forfeiture of Seller's Development Security to SMUD less any Delay Damages already paid by Seller.

8.5 Termination Payment Calculation

If a Termination Event occurs or if this Agreement is terminated following a breach or default as provided in Section 8.2 of this Agreement, in each case ultimately resulting in termination of the Agreement, a "**Termination Payment**" shall be determined in accordance with this Section 8.5. Notwithstanding any provision herein to the contrary, prior to the Commercial Operation Date, the Termination Payment shall be zero dollars (\$0.00).

8.5.1 The Termination Payment payable by the Defaulting Party to the Non-Defaulting Party shall equal: (i) Non-Defaulting Party's Loss as calculated under Section 8.5.1(a) below and discounted to present value as set forth under Section 8.5.1(b) below; plus (ii) Non-Defaulting Party's Cost as calculated under Section 8.5.1(c) below; which will then be aggregated with any amounts owed to the Non-Defaulting Party as of the Early Termination Date, and any set-offs to which Defaulting Party is entitled as set forth under Section 8.5.1(d) below. If the Termination Payment as so calculated would be less than zero, it shall be deemed to be zero.

- a) The Parties intend that Non-Defaulting Party's "**Loss**" shall be the net economic loss (exclusive of Costs), if any, resulting from the termination of the Agreement, determined in a commercially reasonable manner as calculated in accordance with this Section 8.5. The Loss, if any, suffered by Non-Defaulting Party shall be determined by comparing the value of the remaining Term, applying the lesser of (i) the Adjusted AEP for the most recently completed Contract Year, or (ii) the Minimum Annual Energy Production, and the Contract Price for each year of the remaining Term under the Agreement had it not been terminated to the equivalent quantity with each party obtaining, in good faith and from non-affiliated market participants in the relevant market, two quotes for prices of California RPS PCC 1 bundled renewable energy and RECs for the affected period of a similar quality and quantity in the geographical location closest in proximity to the Delivery Point and averaging the four quotes. If either Party fails to provide two quotes, then the average of the other Party's two quotes shall determine the replacement price. For clarity, if SMUD is the Non-Defaulting Party, the Non-Defaulting Party's Loss equals the amount by which the market price of replacement Products exceeds the Contract Price therefor, and if the Seller is the Non-Defaulting Party, the Non-Defaulting Party's Loss equals the amount by which the Contract Price hereunder exceeds the market price of such replacement Products, less the expenses saved

by Seller due to SMUD's default (if any), which includes, but is not limited to, the cost of production of the Products. To ascertain the market price of a replacement contract, Non-Defaulting Party may consider, among other valuations, quotations from leading dealers in ERR contracts, and other bona fide third party offers, all adjusted for the length of the remaining Term and differences in transmission. It is expressly agreed that Non-Defaulting Party shall not be required to enter into replacement transactions in order to determine the Termination Payment. For the avoidance of doubt, if this Agreement is terminated as a result of a SMUD Event of Default and the Interconnection Agreement is also terminated, then the Parties agree it shall be reasonable for Seller to assume no replacement sales will occur in calculating the Termination Payment and therefore, in calculating Seller's Loss, the "market price of replacement Products" shall be deemed to be zero.

- b) The Loss calculated under paragraph (a) shall be discounted to present value using a discount rate of six percent (6%) as of the time of termination (to take into account the period between the time notice of termination was effective and when such amount would have otherwise been due pursuant to this Agreement).
- c) Non-Defaulting Party's "**Costs**" shall be calculated as the sum of the brokerage fees, commissions and other similar transaction costs and expenses reasonably incurred in terminating and replacing the Agreement, including, reasonable transmission costs associated with any replacement contract, if any, incurred in connection with Non-Defaulting Party enforcing its rights with regard to the Agreement. Non-Defaulting shall use reasonable efforts to mitigate or eliminate Costs. Consistent with Section 21.2, each Party shall pay and be responsible for their own attorney fees.
- d) Non-Defaulting Party shall add any amounts owed by the Defaulting Party to the Non-Defaulting Party as of the Early Termination Date to, and shall set-off any amounts owing by the Non-Defaulting Party to the Defaulting Party as of the Early Termination Date against, the Termination Payment so that all such amounts are aggregated and/or netted to a single amount. The net amount due shall be paid within thirty (30) Business Days following the effective date of termination, or, if the Parties disagree regarding the calculation of the Termination Payment, the date that the calculation of the Termination Payment is resolved pursuant to Section 8.5.2.
- e) In no event, however, shall the calculation of Loss or Costs include any penalties or similar charges imposed by the Non-Defaulting Party.

8.5.2 If the Defaulting Party reasonably disagrees with the calculation of the Termination Payment and the Parties cannot otherwise resolve their differences, the calculation issue shall be resolved in accordance with Section 21.

9. CREDITWORTHINESS

9.1 Project Development Security

Within thirty (30) days of the Effective Date, Seller shall provide project development security in the amount equal to the product of (i) \$30/kWac multiplied by (ii) fifty (50) MWac, in the form of cash, Letter of Credit, Surety Bond or guaranty acceptable to SMUD ("**Development Security**"); to be maintained until the start of the Delivery Term.

9.2 Delivery Term Security

Prior to commencement of the Delivery Term, Seller to provide Delivery Term Security in the amount equal to the product of (a) \$75/kWac multiplied by (b) fifty (50) MWac in the form of cash, Surety Bond, Letter of Credit, or guaranty acceptable to SMUD for the duration of the Delivery Term ("**Delivery Term Security**") and SMUD shall return the Development Security provided pursuant to Section 9.1 to Seller. Seller shall maintain the Delivery Term Security for the duration of the Delivery Term.

No lien or other security will be required and SMUD's recourse against Seller shall be limited to the security provided.

"**Qualified Issuer**" is a major U.S. commercial bank or a U.S. branch of a foreign bank ("**Bank**") that, at the time of delivery of a letter of credit, (i) has a combined capital surplus of \$10,000,000,000 and (ii) has a senior unsecured long-term credit rating of at least "A-" by S&P or "A3" by Moody's. If Qualified Issuer fails to meet the foregoing capital surplus and unsecured long-term credit rating requirements, Seller must replace credit support with another Bank.

10. [RESERVED]

11. FORCE MAJEURE

11.1 Effect of Force Majeure

Buyer or Seller, as the case may be, shall be excused from performance under this Agreement to the extent, but only to the extent, that performance hereunder is prevented by an act or event of Force Majeure. The Party invoking Force Majeure shall exercise due diligence to overcome or mitigate the effects of such an act or event of Force Majeure; *provided*, however, that nothing in this Agreement shall be deemed to obligate the Party invoking Force Majeure (a) to forestall or settle any strike, lock-out or other labor dispute against its will; or (b) for Force Majeure affecting Seller only, to purchase electric power to cure the event of Force Majeure.

11.2 Notice of Force Majeure

In the event of any delay or nonperformance resulting from an event of Force Majeure, the Party invoking Force Majeure shall, as soon as practicable under the circumstances, notify the other Party in writing of the nature, cause, date of commencement thereof and the anticipated extent of any delay or interruption in performance.

11.3 Termination Due to Force Majeure Event

If a Party is prevented from performing its material obligations under this Agreement for a period of twelve (12) consecutive months or longer due to Force Majeure, the unaffected Party may terminate this Agreement, without liability of either Party to the other, upon thirty (30) days written notice at any time during the Force Majeure event.

12. INDEMNITY

12.1 Indemnity by Seller

Seller shall defend, release, indemnify and hold harmless SMUD, its directors, officers, employees, agents, and representatives against and from any and all losses, claims, demands, liabilities and expenses, actions or suits, including reasonable costs and attorney's fees, resulting from, or arising out of or in any way connected with claims by third parties associated with the acts or omissions of Seller, its directors, officers, employees, agents and representatives relating to: (i) the Energy delivered at the Delivery Point; (ii) Seller's operation and/or maintenance of the Project; or (iii) this Agreement; excepting only such loss, claim, action

or suit to the extent caused by the willful misconduct or gross negligence of SMUD, its agents, employees, directors or officers.

12.2 Indemnity by SMUD

SMUD shall defend, release, indemnify and hold harmless Seller, its directors, officers, employees, agents, and representatives against and from any and all losses, claims, demands, liabilities and expenses, actions or suits, including reasonable costs and attorney's fees resulting from, or arising out of or in any way connected with claims by third parties associated with acts or omissions of SMUD, its directors, officers, employees, agents, and representatives, relating to: (i) the Energy delivered by Seller under this Agreement after the Delivery Point, (ii) SMUD's operation and/or maintenance of its Electric System; or (iii) this Agreement; excepting only such loss, claim, action or suit to the extent caused by the willful misconduct or gross negligence of Seller, its agents, employees, directors or officers.

13. LIMITATION OF DAMAGES

EXCEPT AS OTHERWISE PROVIDED IN THIS AGREEMENT THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY; SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED UNLESS EXPRESSLY HEREIN PROVIDED. EXCEPT WITH REGARD TO INDEMNIFICATION OF THIRD PARTY CLAIMS IN ACCORDANCE WITH SECTION 12, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, OR OTHERWISE. UNLESS EXPRESSLY HEREIN PROVIDED, AND SUBJECT TO THE PROVISIONS OF SECTION 12, IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. THE TERMINATION PAYMENT UNDER SECTION 8.5.1 IS NOT SUBJECT TO THE LIMITATION OF DAMAGES PROVISION SET FORTH IN THIS SECTION 13. THE PARTIES EXPRESSLY ACKNOWLEDGE AND AGREE THAT THE LIMITATION OF DAMAGES PROVISIONS CONTAINED IN THIS SECTION 13 WILL NOT LIMIT THE RECOVERY BY SELLER OF DAMAGES BASED ON THE VALUE OF ANY ITC OR OTHER TAX BENEFITS THAT ARE LOST, UNAVAILABLE, DISALLOWED, REDUCED OR RECAPTURED THAT ARE REQUIRED TO BE REPAYED, DETERMINED ON AN AFTER-TAX BASIS, BY SELLER, SELLER'S DIRECT OR INDIRECT OWNERS, A LENDER, A TAX EQUITY INVESTOR OR ANY OF THEIR AFFILIATES DUE TO AN EVENT OF DEFAULT BY SMUD THAT SELLER HAS NOT BEEN ABLE TO MITIGATE AFTER USE OF COMMERCIALY REASONABLE EFFORTS (WHICH SUCH AMOUNTS WILL BE DEEMED TO BE DIRECT DAMAGES RECOVERABLE BY SELLER).

14. REPRESENTATION AND WARRANTIES; COVENANTS

14.1 Representations and Warranties

On the Effective Date, each Party represents and warrants to the other Party that:

14.1.1 It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

14.1.2 The execution, delivery and performance of this Agreement is within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it;

14.1.3 This Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms;

14.1.4 It is not Bankrupt and there are no proceedings pending or being contemplated by it or, to its actual knowledge, threatened against it which would result in it being or becoming Bankrupt;

14.1.5 There are not pending or to its actual knowledge threatened legal proceedings against it or any of its affiliates that could materially adversely affect its ability to perform its obligations under this Agreement; and

14.1.6 It is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of, and understands and accepts, the terms, conditions and risks of this Agreement.

14.2 General Covenants

Each Party covenants that throughout the Term of this Agreement:

14.2.1 It shall continue to be duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

14.2.2 It shall maintain (or obtain from time to time as required, including through renewal, as applicable) all regulatory authorizations necessary for it to legally perform its obligations under this Agreement; and

14.2.3 It shall perform its obligations under this Agreement in a manner that does not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it.

14.3 SMUD Representations and Warranties

14.3.1 As of the Effective Date and throughout the Delivery Term, SMUD represents and warrants to Seller that:

14.3.2 SMUD is subject to claims and to suit for damages in connection with its obligations under this Agreement pursuant to and in accordance with the laws of the State of California applicable to municipal utility districts;

14.3.3 SMUD is a "local public entity" as defined in Section 900.4 of the Government Code of the State of California.

15. NOTICES

Notices shall, unless otherwise specified herein, be in writing and may be delivered by hand delivery, United States mail, overnight courier service, facsimile or electronic messaging (e-mail). Whenever this Agreement requires or permits delivery of a "notice" (or requires a Party to "notify"), the Party with such right or obligation shall provide a written communication in the manner specified below. A notice sent by facsimile transmission or email will be recognized and shall be deemed received on the Business Day on which such notice was transmitted if received before 5 p.m. Pacific prevailing time (and if received after 5 p.m., on the next Business Day) and a notice by overnight mail or courier shall be deemed to have been received two (2) Business Days after it was sent or such earlier time as is confirmed by the receiving Party

unless it confirms a prior oral communication, in which case any such notice shall be deemed received on the day sent. A Party may change its addresses by providing notice of same in accordance with this provision. All written notices shall be directed as shown in Exhibit I. Either Party may request a change to Exhibit I as necessary to keep the Exhibit I information current without amendment to this Agreement.

16. SET OFF

Each Party shall be entitled to offset amounts owed by the other Party under this Agreement from the amounts owed to it under the Agreement.

17. ASSIGNMENT

17.1 There shall be no Change of Control of any interest in the Project or sale, transfer or assignment of this Agreement (collectively, a “**Transfer**”) without the prior written consent of the other Party, which consent shall not be unreasonably withheld; provided, however;

17.1.1 A Transfer of (i) this Agreement or (ii) any direct or indirect ownership interests in Seller, in each case to any lender or its designee as collateral for any financing or refinancing of the Project, shall not constitute an assignment, Change of Control or Transfer requiring the consent of SMUD under this Agreement. Any such Transfer shall not relieve Seller of its obligations under this Agreement arising prior to the effective date of such Transfer. To facilitate Seller’s obtaining of financing in connection with the Project, SMUD shall provide such consents to assignments, certifications, estoppels, opinions, representations, information or other documents as may be reasonably requested by Seller or the lenders in connection with the debt or tax equity financing of the Project, as applicable; provided that in responding to any such request, SMUD shall have no obligation to (a) provide any consent, certification, representation, information or other document, or enter into any agreement, that materially and adversely affects, or that could reasonably be expected to have or result in a material adverse effect on, any of SMUD’s rights, benefits, risks and/or obligations under this Agreement (other than terms customary in connection with the applicable financing) or (b) incur any unreimbursed third-party expense. Seller shall reimburse, or shall cause the lender(s) to reimburse, SMUD for the incremental direct third party expenses (including the reasonably documented fees and expenses of SMUD’s counsel) incurred by SMUD in the preparation, negotiation, execution and/or delivery of any documents requested by Seller or the lenders, and provided by SMUD, pursuant to this Section 17.1.1. Upon written request of Seller, SMUD will negotiate a Consent and Agreement between Seller and Seller’s lender and/or tax equity investor in the form reasonably acceptable to SMUD, substantially in the form attached herein as Exhibit L.

17.1.2 Without limitation as to other reasonable grounds for withholding consent, the Parties hereby agree that it shall be reasonable under this Agreement and under any applicable Law for SMUD to withhold consent to any proposed Transfer, where at the time of the Assignment, the assignee is not concurrently assuming all of the future obligations under the IA as well as the future obligations under this Agreement; provided that if the Seller is not in default under the this Agreement and notwithstanding the foregoing, no consent shall be required for any Permitted Transfer. Any such Transfer shall not relieve Seller of its obligations under this Agreement arising prior to the effective date of such Transfer. Notwithstanding the foregoing, Seller shall, within thirty (30) days prior to such Transfer, provide SMUD with written notice of any Transfer permitted under this Section 17.1, which notice shall identify the transferee and contain evidence that the transferee has assumed or will assume all of the obligations under this Agreement arising after the date of the Transfer, and reasonable proof that the Transfer qualifies as an exempt transfer under this Section 17.1. The term “**Affiliate**” as used herein means, with respect

to Seller, any corporation or limited liability company that directly or indirectly controls, is controlled by, or is under common control with, Seller.

17.2 SMUD may request that Seller enter negotiations to permit SMUD's limited assignment of a portion of SMUD's rights and obligations under this Agreement to J. Aron and Company, LLC ("**J. Aron**") at any time upon not less than 30 days' notice by delivering a written request for such assignment. Following any such request by SMUD, (a) Seller, SMUD and J. Aron shall negotiate in good faith the execution of a limited assignment agreement based on the form attached hereto as Exhibit R, and (b) if requested by Seller, Seller and SMUD shall negotiate in good faith an indemnity and/or a legal opinion, to be provided by SMUD for the benefit of Seller, in form and substance satisfactory to Seller.

18. SMUD CLEAN ENERGY COMMUNITY LEADERS – MARK GALL MEMORIAL SCHOLARSHIP.

Seller shall pay SMUD five thousand dollars (\$5,000) in each of Contract Years 1 through 6, for SMUD to use for the purposes of administering a scholarship program for high school seniors attending post-secondary two- or four-year colleges in SMUD partner communities who have a demonstrated interest in renewable energy development in the greater Sacramento area.

19. PROJECT PURCHASE OPTION

Seller hereby grants to SMUD the right and option to purchase all of Seller's right, title and interest in and to the Project and Products the terms set forth herein.

19.1 SMUD shall have the option (the "**Purchase Option**") to terminate this Agreement and purchase from Seller the Project and Products for the greater of (a) the Fair Market Value of the Project and Products, as described in Section 19.6 and (b) the amount of Facility Debt as of the date of the issuance of the Purchase Option, (the higher of (a) and (b), the "**Purchase Price**"), in accordance with this Section 19. SMUD may exercise the Purchase Option upon (i) the tenth (10th) anniversary of the Commercial Operation Date, or (ii) the expiration of the Delivery Term. In the event SMUD desires to exercise the Purchase Option, SMUD shall deliver to Seller a notice indicating SMUD's intent to exercise the Purchase Option (an "**Option Notice**") on or before the date which is no less than six (6) months prior to the no less than six (6) months prior to the tenth (10th) anniversary of the Commercial Operation Date (the "**10-year Purchase Option**"), or no less than six (6) months prior to the end of the Delivery Term (the "**Final Purchase Option**").

19.2 For a period of six (6) months following delivery of the Option Notice with respect to the 10-year Purchase Option, and the Final Purchase Option (the "**Purchase Option Due Diligence Period**"), SMUD and its representatives shall have the right to conduct any and all due diligence which SMUD may reasonably deem necessary with respect to the Project and Products. Seller shall during the Purchase Option Due Diligence Period make available to SMUD and its representatives full access to the Project, related title work, surveys, contracts, data and records and operating personnel ("**Full Access**"). The Purchase Option Due Diligence Period will be extended day-for-day to the extent that, due to Seller's default, Force Majeure or any other reason not attributable to Seller, Full Access cannot be provided.

19.3 SMUD and Seller shall execute a Purchase and Sale Agreement under which Seller will sell and SMUD, or its assign, will purchase the Project at a closing for the purchase and sale of the Project (the "**Closing**") to be held on a date which is within six (6) months following the 12-year Purchase Option or the Final Purchase Option, as applicable, (the "**Closing Date**") at a location selected by SMUD.

19.4 Between the date of the Option Notice and the Closing Date, Seller may not take any actions that would materially adversely affect the Project site, the Project and Products or SMUD's

interest in purchasing the Project and Products. Under this Agreement, among other standard provisions, effective as of the Closing:

19.4.1 Seller shall transfer the Project and Products to SMUD on an as-is, where-is basis, and Seller shall not be required to make any representations or warranties with regard to the Project and Products; *provided, however*, that Seller shall remove any encumbrances placed on the Project and Products by Seller at Seller's expense. No such transfer shall relieve Seller of any liability whatsoever arising from the violation, breach or default by Seller of this Agreement, any transferred contract, transferred permit, transferred intellectual property or other transferred asset, or resulting from any act or omission by Seller that occurred prior to the Closing Date.

19.4.2 Seller shall transfer the Project and Products to SMUD, free and clear of all liens and encumbrances. Seller shall assign and transfer to SMUD all of its right, title and interest in the following: (a) all raw materials, consumables and spare parts, in each case, to the extent relating to the Project and Products; (b) all tangible personal property to the extent relating to the Project and Products; (c) all intangible personal property, including permits, patents, patent licenses, patent applications, trade names, trademarks, trademark registrations and applications therefore, trade secrets, copyrights, know-how, secret formulae and any other intellectual property rights, in each case, to the extent exclusively used by Seller in the operation of the Project and Products; (d) all buildings and fixtures to the extent relating to the Project and Products; (e) computerized and non-computerized records, reports, data, files, and information, in each case, to the extent exclusively used by Seller in the operation of the Project and Products; (f) all design, construction and equipment warranties and guarantees related to the Project and Products in which Seller has any remaining rights against engineers, contractors, suppliers, equipment manufacturers or other persons; and (g) all permits and entitlements. Notwithstanding this Section 19.4.2, Seller shall have the right to retain copies of, and shall have the right to use, any and all records, reports, data, files and information assigned and transferred by Seller to SMUD pursuant to Section 19.4.2(e) for its internal business use, which may include by way of illustration and not be way of limitation: (i) use in accordance with Seller's standard document retention policies; (ii) responding to or otherwise complying with regulatory audits or requests; (iii) responding to third party due diligence requests; (iv) complying with applicable Laws; (v) responding to or defending third party claims or allegations; or (vi) enforcing, defending or interpreting Seller's rights, claims or remedies under this Agreement.

19.4.3 All items relating to the ownership and operation of the Project and Products, which are customarily prorated, shall be prorated as of the Closing Date. Seller shall be liable with respect to items or obligations that relate to any time period prior to the Closing Date and SMUD shall be liable with respect to items or obligations relating to time periods after the Closing Date, and to the extent practicable, shall be credited to Seller's settlement account.

19.5 This and the other Definitive Agreements shall terminate upon the Closing Date and (a) the payment in full to Seller of the Purchase Price and (b) the satisfaction or payment of all other obligations due to either Party under this Agreement.

19.6 The "**Fair Market Value**" of the Project and Products shall be the value determined by the mutual agreement of SMUD and Seller after receipt by Seller of SMUD's Option Notice requesting a determination of the Fair Market Value, or if there is no such agreement, the value determined by an independent appraiser as provided under this Section 19.6. Within ten (10) days of Seller's receipt of an Option Notice, SMUD and Seller shall jointly select a recognized independent appraiser, with experience and expertise in the solar photovoltaic industry to value such Project and Products with whom the Parties will discuss methods and assumptions. Such appraiser shall act reasonably and in good faith to determine the Fair Market Value and shall set forth such

determination in a written opinion delivered to the Parties within a timeframe established upon appointment of the appraiser, aspirationally no later than thirty (30) days after the date of appointment. The valuation made by the appraiser shall be the Fair Market Value in the absence of fraud or manifest error. The costs of the appraisal shall be borne by SMUD. If the Parties are unable to agree on the selection of an appraiser, such appraiser shall be jointly selected by the appraiser firm proposed by SMUD and the appraiser firm proposed by the Seller. The appraiser shall determine the Fair Market Value as the amount a willing buyer would pay for the Project and Products and all rights and interests associated therewith, in an arm's-length transaction, to a willing seller under no compulsion to sell, assuming that this Agreement remains in full force and effect, and that the Project is able to generate revenue for the then-remaining Term at the prices set forth in this Agreement, assuming that thereafter the Project is able to generate revenue at a rate equal to the then fair market rates for the Products and any other products and services associated with and/or produced by the Project, and assuming that the Project will remain in place on the site for the remaining useful life of the Project.

20. APPLICABLE LAW

THIS AGREEMENT AND THE RIGHTS AND DUTIES OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY AND CONSTRUED, ENFORCED AND PERFORMED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW.

21. DISPUTE RESOLUTION

21.1 Trial; Venue

The Parties agree that any suit, action or other legal proceeding by or against any Party (or its Affiliates or designees) with respect to or arising out of this Agreement shall be brought in the courts of the State of California sitting in the County of Sacramento, California.

21.2 Dispute Resolution

If the Parties are unable to resolve a dispute with respect to this Agreement, either Party shall send a notice to the other requesting a meeting at which senior officers or officials of the Parties shall attempt to resolve the dispute. If the Parties are unable to resolve the dispute within ten (10) calendar days after the meeting notice is received by the Party to whom it is directed, or such longer period as the Parties may agree, then either Party may elect to resolve such dispute in the courts of the State of California. Each Party shall pay and be responsible for their own attorney fees.

22. SEVERABILITY

If any provision in this Agreement is determined to be invalid, void or unenforceable by any court or arbitration panel having jurisdiction, such determination shall not invalidate, void, or make unenforceable any other provision, agreement or covenant of this Agreement and the Parties shall use commercially reasonable efforts to modify this Agreement to give effect to the original intention of the Parties.

23. COUNTERPARTS

This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall be deemed one and the same Agreement. Delivery of an executed counterpart of this Agreement by facsimile or PDF transmission will be deemed as effective as delivery of an originally executed counterpart. Each Party delivering an executed counterpart of this Agreement by facsimile or PDF transmission will also deliver an originally executed counterpart, but the failure of any Party to deliver an originally executed counterpart of this Agreement will not affect the validity or effectiveness of this Agreement.

24. GENERAL

No amendment to, modification of, or waiver under this Agreement shall be enforceable unless reduced to writing and executed by both Parties. This Agreement shall not impart any rights enforceable by any third party other than a permitted successor or assignee bound to this Agreement. Waiver by a Party of any default by the other Party shall not be construed as a waiver of any other default. The term “including” when used in this Agreement shall be by way of example only and shall not be considered in any way to be in limitation. The headings used herein are for convenience and reference purposes only.

25. MOBILE SIERRA

Notwithstanding any provision of this Agreement, neither Party shall seek, nor shall they support any third party in seeking, to prospectively or retroactively revise the rates, terms or conditions of service of this Agreement through application or complaint to FERC pursuant to the provisions of Section 205, 206 or 306 of the Federal Power Act, or any other provisions of the Federal Power Act, absent prior written agreement of the Parties. Further, absent the prior agreement in writing by both Parties, the standard of review for changes to the rates, terms or conditions of service of this Agreement proposed by a Party, a non-Party or the FERC acting *sua sponte* shall be the “public interest” application of the “just and reasonable” standard of review set forth in *United Gas Pipe Line Co. v. Mobile Gas Service Corp.*, 350 US 332 (1956) and *Federal Power Commission v. Sierra Pacific Power Co.*, 350 US 348 (1956) and clarified by *Morgan Stanley Capital Group, Inc. v. Pub. Util. Dist. No. 1 of Snohomish*, 554 U.S. 527, 128 S. Ct. 2733 (2008) and *NRG Power Mktg., LLC v. Maine Pub. Util. Comm’n*, 130 S. Ct. 503 (2010).

26. SERVICE CONTRACT; FORWARD AGREEMENT

The Parties intend that this Agreement will be treated as a service contract pursuant to Section 7701(e)(3) of the Internal Revenue Code for the sale to SMUD of energy produced at an alternative energy Project, and the Parties shall not file any tax returns inconsistent with such treatment. The Parties agree that this Agreement constitutes a ‘forward contract’ as defined in the United States Bankruptcy Code and that each Party is a “Forward Contract Merchant” within the meaning of the United States Bankruptcy Code.

27. ENTIRE AGREEMENT

This Agreement, together with the IA, and the Reimbursement and Waiver Agreement, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter hereof and thereof. Other than the IA, and the Reimbursement and Waiver Agreement, there are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party’s compliance with its obligations under this Agreement.

IN WITNESS WHEREOF, each Party has caused this Agreement to be duly executed by its authorized representative as of the date of last signature provided below.

SACRAMENTO MUNICIPAL UTILITY [____]
DISTRICT

By: _____

Name:

Title:

By: _____

Name:

Title:

Date: _____

Date: _____

EXHIBITS

Exhibit A – Description and Location of Project

Exhibit B – Contract Price

Exhibit C – Project Performance Benchmarks

Exhibit D – Average Solar Irradiance by Month

Exhibit E – Commercial Operation Date Confirmation Letter

Exhibit F – Capacity Attribute Reporting and Conveyance Procedure

Exhibit G – Available Capacity Notification Requirements and Outage Notification Procedure

Exhibit H – Environmental Attribute Reporting and Conveyance Procedure

Exhibit I – Notices

Exhibit J – Reserved

Exhibit K – Deemed Delivered Energy Calculation Procedure

Exhibit L – Form of Consent and Agreement to Collateral Assignment

Exhibit M – Reserved

Exhibit N – Project Milestone Schedule

Exhibit O – Reserved

Exhibit P – Metering Diagram

Exhibit Q – Form of Letter of Credit

Exhibit R – Form of Limited Assignment Agreement

Exhibit A

DESCRIPTION AND LOCATION OF PROJECT

- A.1 The Project is described as a PV system, comprised of PV arrays, inverters, and associated facilities and equipment. Final inverter count to be provided after commissioning testing.
- A.2 The Project is located in Sacramento County at 7794 Dillard Rd, Sloughhouse, CA 95683 (GPS coordinates: (38.4672631, -121.1756708)).
- A.3 The Project's primary fuel is solar.
- A.4 The Expected Capacity is 50 MW AC at the Delivery Point, or such lesser amount as calculated pursuant to PPA Section 2.3.8.
- A.5 The expected Installed Capacity is 50 MWac measured at the Delivery Point. The Final Installed Capacity to be reported by Seller to SMUD in accordance with Sections 2.3.4 and 2.3.8 is _____ MWac, but shall not exceed 50 MWac Capacity. Pursuant to Section 2.1, at least ninety (90) days prior to the date on which Seller reasonably anticipates that Commercial Operation will occur, Seller will provide SMUD a final version of Exhibit A which will include updates to the values set forth in this Section A.5 based on the final design of the Project.
- The expected rated capacity of each PV panel is _____ Wdc
The number of panels expected to be installed is _____ panels
The expected rated capacity of each inverter is _____ kWac (limited to 25 MWac total at each POI)
The number of inverters expected to be installed is _____ inverters.
- A.6 The Delivery Point is the location of the interconnection of the Project on the high-side of the step-up transformer that interconnects to the SMUD 69kV System, as shown in Exhibit C to the IA.
- A.7 The Scheduled Commercial Operation Date is December 31, 2023.
- A.8 The Guaranteed COD for Commercial Operation is nine (9) months after the Scheduled COD; i.e. September 30, 2024, subject to day-for-day extension to the extent the Scheduled COD is extended.
- A.9 Meters
a. Project Meter: See Exhibit P
b. SMUD Revenue Meter: See Exhibit P
- A.12 Design Standards
Electrical subsystems, including but not limited to the solar array equipment, medium voltage collection system, and solar 69kV substation, shall comply with relevant IEEE, NESC, NEC, ANSI, NFPA, ASCE, IBC, ASTM, CPUC General Orders, and SMUD specific design standards set forth in the IA.

Exhibit B

Contract Price

The "Contract Price" with respect to each Contract Year is set forth in the table immediately below:

Contract Year	Contract Price
1 – 27	\$34.46/MWh (flat) with no escalation,
28 – 30 (if the Delivery Term is extended hereunder)	\$34.46/MWh (flat) with no escalation,

Exhibit C

PROJECT PERFORMANCE BENCHMARKS

Year of Term	Expected Annual Energy Production (MWh)	Minimum Annual Energy Production (MWh)
1	131,957	118,761
2	131,297	118,167
3	130,637	117,573
4	129,978	116,980
5	129,318	116,386
6	128,658	115,792
7	127,998	115,198
8	127,338	114,604
9	126,679	114,011
10	126,019	113,417
11	125,359	112,823
12	124,699	112,229
13	124,039	111,635
14	123,380	111,042
15	122,720	110,448
16	122,060	109,854
17	121,400	109,260
18	120,741	108,667
19	120,081	108,073
20	119,421	107,479
21	118,761	106,885
22	118,101	106,291
23	117,442	105,698
24	116,782	105,104
25	116,122	104,510
26	115,462	103,916
27	114,803	103,323
28	114,143	102,729
29	113,483	102,135
30	131,957	101,541

Both the Expected Annual Energy Production (EAEP) and Minimum Annual Energy Production (MAEP) include an annual degradation rate of 0.5%.

The Expected Annual Energy Production and Minimum Annual Energy Production will be updated by Seller to account for the final equipment selection of the Project and the Parties will revise this Exhibit to update such values and issue a new Exhibit which shall then become part of the Agreement. No formal amendment of the Agreement is required to update this Exhibit.

Upon mutual consent of the Parties, a new Exhibit C may be issued. When updated, the Parties will insert a new effective date for this Exhibit C, which will replace the prior Exhibit C.

Effective Date Month, Day, Year

Signature of Seller

Signature of SMUD

Exhibit D
AVERAGE SOLAR IRRADIANCE BY MONTH

[To be updated within 180 days prior to the Commercial Operation Date]

For Typical Weather Year Energy Calculation

Month	Solar Irradiance (kWh/m ² /day)
January	60.90
February	86.00
March	142.30
April	182.60
May	226.00
June	240.60
July	246.70
August	220.00
September	172.80
October	128.50
November	77.30
December	58.90
Annual Average	153.55
Annual Total	1842.50

Source of data: Clean Power Research – Solar Anywhere 1 km grid, Typical GHI/DNI year, V3.2, average values, 60-minute resolution reviewed, scaled and rebalanced by AWS Truepower on 04/20/18.

If Seller delivers revised data for use in Exhibit D reflecting irradiance data provided by Seller's third party service provider, then (i) SMUD shall review such revised data and (ii) will not unreasonably withhold acceptance of such revised data. Subject to the foregoing sentence, upon mutual consent of the Parties, a new Exhibit D may be issued. When updated, the Parties will insert a new effective date for this Exhibit D, which will replace the prior Exhibit D.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit E

COMMERCIAL OPERATION DATE CONFIRMATION LETTER

In accordance with the terms of that certain Power Purchase Agreement dated _____ ("Agreement") by and between the Sacramento Municipal Utility District ("SMUD") and [_____] ("Seller"), this letter serves to document the parties further agreement that (i) the COD Conditions for the occurrence of the Commercial Operation Date have been satisfied, and (ii) SMUD has received the energy, as specified in the Agreement, as of this ____ day of ____.

This letter shall confirm the Commercial Operation Date, as defined in the Agreement, as the date referenced in the preceding sentence.

IN WITNESS WHEREOF, each Party has caused this Agreement to be duly executed by its authorized representative as of the date of last signature provided below:

SELLER

Sacramento Municipal Utility
District

By: _____

By: _____

Name:

Name:

Title:

Title: Director, Energy Trading &
Contracts

Date: _____

Date: _____

Exhibit F

CAPACITY ATTRIBUTE REPORTING AND CONVEYANCE PROCEDURE

F.1 Additional Definitions for the Conveyance of Capacity:

None.

F.2 Reporting of Capacity Attributes. SMUD will report the Capacity Attributes acquired herein in any regulatory filing that SMUD is required to make in order to declare the Capacity of the Project (or any portion thereof) as meeting SMUD's Capacity planning requirement (also known as Resource Adequacy).

F.3 Changes in Capacity Attribute Conveyance Procedure. Subject to Section 4.3, SMUD may revise this Exhibit F as appropriate, give written notice to Seller regarding the revision, and issue a new Exhibit F, which shall then become part of the Agreement in the event that the method for reporting and conveying Capacity Attributes changes from the process described herein provided that no update to this Exhibit F shall be permitted to impose any material (non-administrative) additional costs on Seller.

Exhibit G

AVAILABLE CAPACITY NOTIFICATION

REQUIREMENTS AND OUTAGE NOTIFICATION PROCEDURE

G.1 Additional Definitions for the Outage Notification Procedure: None.

G.2 [Available Capacity Notification Requirements].

G.2.1 No later than (a) three (3) months prior to the Commercial Operation Date, and (b) on or before July 1 for each calendar year thereafter for every subsequent Contract Year during the Delivery Term, Seller shall provide to SMUD a schedule of the hourly Available Capacity for each day in each month of the following calendar year in a form reasonably acceptable to SMUD.

G.2.2 Ten (10) Business Days before the beginning of each month during the Delivery Term, Seller shall provide to SMUD a schedule of the hourly Available Capacity for each day of the following month in a form reasonably acceptable to SMUD.

G.2.3 Weekly Notification of Available Capacity

G.2.3.1 The SELLER will contact the SMUD Day Ahead Trading Desk, as provided in Exhibit I Notices, on a weekly basis in order to provide information on expected plant usage during the following week.

G.2.3.2 The information shall include the available capacity, by hour, expected for the Generating.

G.2.3.3 SELLER shall provide such information on the Wednesday prior to the affected week which begins on Monday and shall be communicated in an agreed upon format by email (primary) or fax (secondary), and confirmed by phone.

G.2.3.4 A sample Schedule is shown in Section G.2.6, herein.

G.2.4 Day Ahead Notification of Available Capacity (Prescheduling)

G.2.4.1 Preschedule days are days when the SMUD Day Ahead Trader plans for the resources and generation necessary to serve SMUD load for a day or number of days subsequent to the day of prescheduling. The following is the current typical prescheduling pattern followed by SMUD Day Ahead Traders: on Monday for Tuesday, On Tuesday for Wednesday, on Wednesday for Thursday, on Thursday for Friday and Saturday, and on Friday for Sunday and Monday. This pattern will change periodically to accommodate WECC stipulated designated holidays, and may change due to changes in WECC scheduling practices or adoption by SMUD of the prevailing Regional Transmission Organization/Independent System Operator, or its replacement's scheduling protocols. Said changes shall be communicated telephonically to the SELLER by SMUD and confirmed by email or fax. The WECC preschedule days can be found on the WECC web site at <https://www.wecc.biz>.

G.2.4.2 No later than 0600 of each preschedule day, the SELLER shall provide the SMUD Day Ahead Trader with an Available Capacity schedule. The information shall include the available capacity, by hour, expected for the Project ("Day-Ahead Notification of Available Capacity").

G.2.4.3 If Seller fails to provide SMUD with a Day-Ahead Notification of Available Capacity Notification as required in Section G.2.4.2, then, (a) until Seller provides a Day-Ahead Available Capacity Notification, SMUD may rely on the most recent Day-Ahead Available Capacity Notification submitted by Seller to SMUD and (b) Seller shall be subject to Scheduling Penalties as provided in Section 7.4 of the Agreement to the extent incurred by SMUD.

G.2.5 Active Day Notification of Available Capacity

G.2.5.1 In the event of a change of at least 1 MW of Available Capacity that may be expected by the SELLER from the pre-scheduled quantities of power, such as for unplanned Project outages, the SELLER will provide the SMUD Real Time Trader with the changes in hourly power quantities provided during pre-scheduling ("Active Day Notification").

G.2.5.2 If Seller fails to provide SMUD with an Active Day Notification of Available Capacity as required in Section G.2.5.1, then, (a) until Seller provides an Active Day Available Capacity Notification, SMUD may rely on the most recent Day-Ahead Notification of Available Capacity submitted by Seller to SMUD and (b) Seller shall be subject to Scheduling Penalties as provided in Section 7.4 of the Agreement to the extent incurred by SMUD.

G.2.6 Sample Prescheduling Table

Date: ____/____/____							
Weekly Preschedule Template			Prepared & Sent By:				
	Monday ____/____/____	Tuesday ____/____/____	Wednesday ____/____/____	Thursday ____/____/____	Friday ____/____/____	Saturday ____/____/____	Sunday ____/____/____
Hour Ending	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)	Day Ahead Schedule (MW)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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24							
AVG.							

- G.3 Planned Outage Notifications. In addition to the 30 days advance written notice in regard to a Planned Outage as per Section 7.5, Seller shall notify SMUD at least 72 hours in advance of Planned Outages that result in a reduction in the effective output of the Project during period over which the Planned Outage is scheduled. Notification should be by email to the addresses shown in the Outages section of the Notices, Exhibit I.
- G.4 Notification of PV Array Cleaning. If Seller has scheduled cleaning for PV arrays, Seller shall notify SMUD at least 72 hours in advance of scheduled cleaning, and should include details of the cleaning plan. Seller shall also follow-up with SMUD after cleaning of the Project in order to verify the actual cleaning dates and times. Notification should be made by email to the addresses shown in the Planned Outages section of the Notices, Exhibit I.
- G.5 Forced Outage Notifications. Pursuant to Section 7.6, as soon as reasonably practicable after Seller is aware of a Forced Outage of the Project that impacts the ability of the Project to produce Energy in excess of 1 MW_{AC} of the Expected Capacity, Seller shall notify SMUD of the Forced Outage, including the Capacity of the Project that is impacted, and the expected duration of the Forced Outage. As soon as is possible, but not less than two (2) hours prior to the return of the Project to service following such Forced Outage Seller shall notify SMUD of the return to service details. Notification shall be made in accordance with the Outages section of the Notices, Exhibit I.
- G.6 Changes in Outage Notification Procedure. Upon mutual consent of both Parties, SMUD shall revise this Exhibit G as appropriate, give written notice to Seller regarding the revision, and issue a new Exhibit G, which shall then become part of the Agreement to reflect changes in the Outage Notification Procedure.
- G.7 Automated Data Reporting: Seller's IA specifies automatic data reporting requirement (IA Appendix H).

Annual Outage Forecast: Seller shall report to SMUD annually, at least 30 days prior to the beginning of a Contract Year, a forecast of planned maintenance outages including the estimated duration and timing of outages in the prompt Contract Year. The Annual Outage Forecast shall be revised and reported by Seller on an "as needed" basis.

Upon mutual consent of the Parties, a new Exhibit G may be issued., When updated, the Parties will insert a new effective date for this Exhibit G, which will replace the prior Exhibit G.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit H

ENVIRONMENTAL ATTRIBUTE REPORTING AND CONVEYANCE PROCEDURE

H.1 Additional Definitions for the Conveyance of Environmental Attributes:

“Certificate Transfers” means the process, as described in the WREGIS Operating Rules whereby a WREGIS account holder may request that WREGIS Certificates from a specific generating unit be directly deposited into another WREGIS account.

“WREGIS” means the Western Renewable Energy Generation Information System, sponsored by the WECC and utilized by the CEC and Green-e for tracking the generation and transfer of RECs. The URL for WREGIS is www.WREGIS.org.

“WREGIS Certificates” means a certificate created within the WREGIS system that represents all Renewable and Environmental Attributes from one MWh of electricity generation from an Eligible Renewable Energy Resource that is registered with WREGIS.

“WREGIS Operating Rules” means the document published by WREGIS that govern the operation of the WREGIS system for registering, tracking, conveying, etc. Renewable Energy Credits produced from Eligible Renewable Energy Resources that are registered with WREGIS.

H.2 Renewable Energy Credits. Environmental Attributes shall be conveyed by Seller to SMUD through Renewable Energy Credits which shall be registered tracked and conveyed to SMUD using WREGIS.

H.3 WREGIS Registration. Prior to the Commercial Operation Date, SMUD will initiate registration of the Project in SMUD’s WREGIS account on behalf of Seller. Final acceptance by WREGIS requires submittal by SMUD of Exhibit E, “Commercial Operation Date Confirmation Letter.” SMUD shall charge back to Seller any costs for issuance or creation of WREGIS Certificates for the Project.

H.4 SMUD’s WREGIS Account. SMUD shall, at its sole expense, establish and maintain SMUD’s WREGIS account sufficient to accommodate the WREGIS Certificates produced by the output of the Project. SMUD shall be responsible for all expenses associated with (A) establishing and maintaining SMUD’s WREGIS Account, and (B) subsequently transferring or retiring WREGIS Certificates.

H.5 Qualified Reporting Entity. SMUD shall be the Qualified Reporting Entity for Project, and shall be responsible for providing metered Project output data to WREGIS in accordance with WREGIS reporting guidelines

H.6 Reporting of Environmental Attributes. In lieu of Seller transferring the WREGIS Certificates using Certificate Transfers from Seller’s WREGIS account to the WREGIS account of SMUD, SMUD shall report the Project as being directly in its WREGIS account, which will preclude Seller from reporting the Project in its own WREGIS account.

H.6.1 By avoiding the use of Certificate Transfers, there will be no transaction costs to Seller or SMUD for the Certificate Transfers that would otherwise be used.

H.6.2 WREGIS Certificates for the Project will be created on a calendar month basis in accordance with the certification procedure established by the WREGIS Operating Rules in an amount equal to the Energy generated by the Project and delivered to SMUD in the same calendar month.

H.6.3 WREGIS Certificates will only be created for whole MWh amounts of energy generated. Any fractional MWh amounts (*i.e.*, kWh) will be carried forward until sufficient generation is accumulated for the creation of a WREGIS Certificate and all such accumulated MWh of Environmental Attributes will then be available to SMUD.

H.6.4 Should a WREGIS Certificate Modification be required to reflect any errors or omissions regarding the Environmental Attributes from the Project SMUD will manage the submission of the WREGIS Certificate Modification.

H.6.5 Due to the expected delay in the creation of WREGIS Certificates relative to the timing of settlement payments under Section 2.4, SMUD shall make a settlement payment for a given month in accordance with Section 2.4 before the WREGIS Certificates for such month may be created in SMUD's WREGIS account. Notwithstanding this delay, SMUD shall have all right and title to all such WREGIS Certificates upon payment to Seller in accordance with Section 2.4.

H.7 Changes in Environmental Attributes Reporting and Conveyance Procedure. Subject to Sections 3.4 and 3.6, SMUD may revise this Exhibit H as appropriate, give written notice Seller regarding the revision, and issue a new Exhibit H which shall then become part of the Agreement, in order to reflect changes necessary in the Environmental Attribute conveyance procedure for SMUD to be able to receive and report the Environmental Attributes purchased under this Agreement as belonging to SMUD provided that no such updated Exhibit H may impose new material (non-administrative) additional costs on Seller.

Upon mutual consent of the Parties, a new Exhibit H may be issued., When updated, the Parties will insert a new effective date for this Exhibit H, which will replace the prior Exhibit H.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit I

NOTICES

All notices shall be directed as follows:

I.1 For Contract Administration

To SMUD:

Sacramento Municipal Utility District
Power Contracts Administration

6301 S Street
Sacramento, CA 95817-1899

Or,

P.O. Box 15830
Sacramento, CA 95852-1830

Phone: (916) 732-6244

Email: PowerContractsAdministration@smud.org

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036

c/o D. E. Shaw Renewable Investments

Attn: Hy Martin, Chief Development Officer

Phone: 212-478-0000

Fax: 212-478-0100

Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.2 For Billing and Settlements

To SMUD:

Energy Settlements

Phone: (916) 732-6312

Email: EnergySettlements@smud.org

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036

c/o D. E. Shaw Renewable Investments

Attn: Hy Martin, Chief Development Officer

Phone: 212-478-0000

Fax: 212-478-0100

Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.3 For Scheduling

To SMUD:

Day Ahead Trading Desk

Phone: (916) 732-5669
Email: dayaheadtrading@smud.org;

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036
c/o D. E. Shaw Renewable Investments
Attn: Hy Martin, Chief Development Officer
Phone: 212-478-0000
Fax: 212-478-0100
Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.4 For Planned Outages

Note:

All planned solar generation outage scheduling requests must be processed by SMUD's Power Generation department. Seller must submit outage plans to SMUD Power Generation by contacting:

SMUD Power Generation Planned Outage Requests:
Laurie.Johnson@smud.org (916) 732-4822

Ryan.Donovan@smud.org (916) 732-6240

SMUD Power Generation will then process the notice to inform DSO, PSO and ET&C of the planned outage.

SMUD Real-Time Notifications: SMUD Real-Time Power System Operator-Generation
(916) 732-6225 SMUD Shift Senior Power System Operator (916) 732-6730

To SMUD:

SMUD Power Generation Planned Outage Requests:
Laurie.Johnson@smud.org (916) 732-4822

Ryan.Donovan@smud.org (916) 732-6240

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036
c/o D. E. Shaw Renewable Investments
Attn: Hy Martin, Chief Development Officer
Phone: 212-478-0000
Fax: 212-478-0100
Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.5 For Forced Outages

To SMUD:

Forced outages are coordinated by SMUD's Distribution System Operator.

Forced outages are reported by Seller by contacting the real-time DSO. (916) 732-5334 or 916-455-1671. The SMUD DSO will then notify the SMUD PSO who will continue the generation outage reporting process and notify Power Generation and ET&C.

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036
c/o D. E. Shaw Renewable Investments
Attn: Hy Martin, Chief Development Officer
Phone: 212-478-0000
Fax: 212-478-0100
Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.6 Same-day Phone Notification of Outages

In addition to the email distribution, phone notification is required for planned or forced outages, or requests for energization, as follows:

To SMUD:

Distribution System Operations
Phone: 916-455-1671. Call first thing in the morning with regard to outages.

To Seller:

[_____]

1166 Avenue of the Americas, Ninth Floor
New York, NY 10036
c/o D. E. Shaw Renewable Investments
Attn: Hy Martin, Chief Development Officer
Phone: 212-478-0000
Fax: 212-478-0100
Email: desri-notices@world.deshaw.com, hy.martin@deshaw.com

I.7 Notification Requirements for Start/Completion of Planned Outages & Normal Start-up/Shutdown

Prior to starting, and at the completion of, a Planned Outage, contact the Power System Operator to report and coordinate the start or completion time of the Planned Outage.

Prior to paralleling or after disconnection from the SMUD 69kV system, always contact the Distribution System Operator with the following as applicable:

- Intent to parallel before any start-up,

- After the unit has paralleled, report the parallel time and intended unit output,
- After any separation, report the separation time as well as the date and time estimated for return to service.

Distribution System Operations
Phone: 916-455-1671.

I.8 Changes to Exhibit I

Either Party may request a change to Exhibit I as necessary to keep the information current. The Parties shall update Exhibit I prior to COD to ensure consistency with other notice provisions in this Agreement, subject to mutual agreement. Such changes to Notices generally do not require a PPA amendment

I.9 General Requirements for Forced and Scheduled Outages – SMUD coordination process

These general requirements are incorporated into this PPA and are extracted from SMUD applicable Standard Practice/Operating procedures entitled “Solar Operating Process” as may be amended or replaced from time to time. Updates to relevant procedural documents are to be incorporated herein upon effectiveness of the Standard Practice (when approved by SMUD management) without a requirement to amend this PPA; *provided* that no such updates shall be effective under this PPA unless and until such updates have been provided in writing to Seller. Notwithstanding anything herein to the contrary, to the extent of any conflict between Section 7.6 and this Section I.9 (as modified), Section 7.6 shall control.

Planned Outages including the ETR are to be scheduled and logged in iTOA (integrated Tools for Operations Application) as other generating resources in compliance with applicable Standard Practice /Operating procedure and specifically ETC 15-046. The Seller's operator will send planned outage requests to SMUD [Power Generation department] who will input the data into iTOA for processing. SMUD Outage Coordination will process the requests as outlined in applicable Standard Practice /Operating procedure and specifically ETC 15-046. SMUD planned outages of facilities that limit or restrict the output of the generator shall be coordinated with the Seller's operator to the extent practicable[, provided that in the event that the parties cannot agree, SMUD may establish the outage times and return dates].

Seller shall notify SMUD [Power Generation department] of all planned outages at least thirty (30) days in advance of outage with an email containing the outage start date and time and return date and time, emergency restoration time and description of the planned maintenance or other work that curtails the energy output to SMUD. SMUD [Power Generation department] will create an iTOA request and provide [_____] via email confirmation of the Planned Outage.

Rescheduling Planned Outages

In the event that the Planned Outage period (either start or end date & time) of the Project is revised the Seller's operator shall:

(a) Prior to Outage Start

- (i) Greater than 6 days prior to start of outage advise SMUD [Power Generation] department via email with the new start or end date & time

- (ii) Less than 6 days and greater than 48 hours prior to start of outage advise SMUD [Power Generation] department and [Energy Trading & Contracts] via email and phone notification
- (iii) Less than 48 hours prior to start of outage advise SMUD [Power Generation] department via phone notification followed up with email to also include [Energy Trading & Contracts]
- (b) Active Outage (after planned start date & time)
 - (i) Advise SMUD [PSO]; who will promptly review the request, coordinate internally with other SMUD departments
 - (ii) Seller may revise the ETR [so long as the request can be accommodated without creating a reliability concern for SMUD].
 - (iii) Once the revised ETR is logged into iTOA it becomes the new ETR for the Project.

In any case SMUD requires a minimum of 2 hours' prior notice of ETR (end date & time) changes to allow SMUD sufficient time to coordinate internally and effectuate the power market processes. SMUD has the discretion to allow an early return or retain the scheduled return time.

SMUD will endeavor to accommodate changes to the Project's ETR as described in Section 7.6. In the event that the return date is modified by SMUD, SMUD shall promptly advise the Seller's operator accordingly.

Real-Time Outage Management

[The SMUD DSO is responsible for the Distribution system connected to the Project and to ensure changes in generation do not create an adverse impact to the safe operation of the SMUD distribution system. The SMUD PSO is responsible for ensuring that Project's generating facilities data is input into EMS for energy and capacity purposes, iTOA and external market outage management system is updated and to keep track of the photovoltaic facilities status so that after-the-fact accounting may take place. SMUD shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries may be required.

The [] operator shall communicate real-time operating details to the PSO. This includes parallel, separation times, coordinating planned maintenance to start, planned or forced maintenance start and end date and times changes and any issues relating to AGC, voltage control or protection systems.]

Forced Outages

The Seller's operator is obligated to report Forced Outages to the SMUD [PSO] as soon as reasonably practicable but not more than 1 hour after Seller is aware of a Forced Outage that impacts the ability of the Project to produce Energy in excess of 5 MWAC. This does not include limitations associated with solar radiance.

Forced Outage notification to SMUD DSO via phone notification shall include

- (a) Start date and time the outage occurred,
- (b) Estimated capability or availability,
- (c) Expected end date and time of the outage or estimated time of return (ETR),
- (d) Cause or any outage details if known, such as impacted equipment.

The SMUD DSO will contact SMUD PSO who will create a Forced Outage card in iTOA, update external outage management system and notify the [Real-Time Energy Traders] with the details including the ETR as logged in iTOA.

Active Outages

The Seller's operator is obligated to report any material change in outage status to the SMUD [DSO], as soon as reasonably practicable but not more than 1 hour after Seller is aware of a Forced Outage that impacts the ability of the Project to produce Energy in excess of a 5 MWAC.

Rescheduled Forced or Active Outages

In the event that Forced Outage [or Active Outage] period (during outage, until ETR) or currently reported capability of the facility is revised the Seller's operator shall:

- (a) Greater than 6 days before ETR:
 - (i) Advise SMUD [Power Generation department] via email who will communicate changes internally to SMUD PSO and [Energy Trading & Contracts].
 - (ii) SMUD [PSO] will update iTOA and external outage management system for the new ETR.
 - (iii) SMUD [Power Generation department] to provide confirmation of new ETR
- (b) Less than 6 days, but greater than 48-hours before ETR
 - (i) Contact SMUD [DSO] via phone
 - (ii) Email SMUD [Power Generation department and Energy Trading & Contracts]
- (c) Less than 48-hour notification before ETR
 - (i) Contact SMUD [DSO] via phone

In any case SMUD requires a minimum of 2 hours' notice to allow SMUD sufficient time to coordinate internally and effectuate the power market process. SMUD has the discretion to allow an early return or retain the scheduled return time.

SMUD DSO will promptly review the request, coordinate with SMUD PSO who will then process the information internally with other SMUD departments, revise the ETR and update external outage management systems so long as the request can be accommodated without creating a reliability concern for SMUD. Once the revised ETR is logged into iTOA it becomes the new ETR for the generator.

SMUD will endeavor to accommodate changes to the generator's ETR as described in PPA Section 7.6 Forced Outages. In the event that the return date is modified SMUD, SMUD shall promptly advise the Seller's operator accordingly.

When a bulk electric system disturbance impacts Seller the SMUD PSO will notify the Seller's operator with necessary information and then create a forced iTOA card to document the outage and then shall notify the SMUD Real-Time Energy Trader.

Upon mutual consent of the Parties, a new Exhibit I may be issued., When updated, the Parties will insert a new effective date for this Exhibit I, which will replace the prior Exhibit I.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit J

Reserved

Exhibit K

DEEMED DELIVERED ENERGY CALCULATION PROCEDURE

K.1 Additional Definitions for this Procedure:

None.

K.2 Calculation of Deemed Delivered Energy. Following a curtailment that is caused by (i) Force Majeure, (ii) SMUD Curtailment, (iii) SMUD's breach of this Agreement or the Interconnection Agreement that prevents or excuses Seller from delivering Energy to the Delivery Point, (iv) Forced Outages or Planned Outages and (v) Dispatch Down Periods, Seller shall submit to SMUD calculation of the hourly energy that would have been generated in accordance with Section 6.8.

K.3 Verification of Deemed Delivered Energy. SMUD may perform a verification of Deemed Delivered Energy utilizing data from either 1) SMUD's POA sensor mounted on a tracking arrays; or 2) data received directly from Seller's POA sensor mounted on a tracking array.

K.4 Changes in Exhibit K Procedure. Upon mutual consent of both Parties, SMUD shall revise this Exhibit K as appropriate, give written notice to Seller regarding the revision, and issue a new Exhibit K, which shall then become part of the Agreement to reflect changes in this Procedure.

Upon mutual consent of the Parties, a new Exhibit K may be issued., When updated, the Parties will insert a new effective date for this Exhibit K, which will replace the prior Exhibit K.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit L

FORM OF CONSENT AND AGREEMENT TO COLLATERAL ASSIGNMENT

This CONSENT AND AGREEMENT (this "Consent"), dated as of _____, 20____, is entered into by and among the Sacramento Municipal Utility District, a California Municipal Utility District formed and existing under the laws of the State of California (together with its successors and permitted assigns, "SMUD") ("Buyer"), _____ (together with its successors, designees and assigns in its capacity, "Lender"), [____], a [limited liability company] formed and existing under the laws of the State of XX (together with its successors and permitted assigns, "Seller"). Unless otherwise defined, all capitalized terms have the meaning given in the Power Purchase Agreement (as hereinafter defined).

RECITALS

A. Seller intends to develop, construct, install, test, own, operate and use (i) an approximately 50MW_{ac} solar photovoltaic electric Project ("the Project") located in Sacramento County XXXX.

B. In order to partially finance the development, construction, installation, testing, operation and use of the Project, the Seller and/or one or more of its Affiliates has entered into that certain **[Financing Agreement,]** dated as of _____ (as amended, amended and restated, supplemented or otherwise modified from time to time, the "Financing Agreement"), among Seller and/or one or more of its Affiliates, the financial institutions from time to time parties thereto as lenders and/or issuing banks, and Lender as agent on behalf of such financial institutions, pursuant to which, among other things, such financial institutions have extended commitments to make loans and other financial accommodations to, and for the benefit of, Seller.

C. Buyer and Seller have entered into that certain Power Purchase Agreement, dated as of _____ (attached hereto and incorporated herein by reference, as amended, amended and restated, supplemented or otherwise modified from time to time in accordance with the terms thereof and hereof, the "Power Purchase Agreement").

D. Pursuant to a [security agreement] executed by Seller and Lender (as amended, amended and restated, supplemented or otherwise modified from time to time, the "Security Agreement"), Seller has agreed, among other things, to assign, as collateral security for [its] [their] obligations under the Financing Agreement and related documents (collectively, the "Financing Documents"), all of its right, title and interest in, to and under the Power Purchase Agreement [and the Project PPA] to Lender for the benefit of Lender and each other entity or person providing collateral security under the Financing Documents.

E. It is a requirement under the Financing Agreement that SMUD and the other parties hereto execute this Consent.

AGREEMENT

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, and intending to be legally bound, the parties hereto hereby agree as follows:

1. CONSENT TO ASSIGNMENT. Subject to the terms and conditions below, SMUD consents to a complete assignment of all rights and obligations of the Power Purchase Agreement by Seller to Lender pursuant to the Financing Documents.

2. LIMITATIONS ON ASSIGNMENT.

(a) Lender shall be entitled (but not obligated) to exercise all rights and to cure any defaults of Seller under the Power Purchase Agreement, subject to applicable notice and cure periods provided in the Power Purchase Agreement and as set forth herein. Upon receipt of notice from Lender, SMUD agrees to accept such exercise and cure by Lender if timely made by Lender under the Power Purchase Agreement and this Consent. Upon receipt of Lender's written instructions and to the extent allowed by law, SMUD agrees to make directly to such account as Lender may direct SMUD in writing from time to time, all payments to be made by SMUD to Seller under the Power Purchase Agreement from and after SMUD's receipt of such instructions, and Seller consents to any such action. SMUD shall have no liability to Seller under the Power Purchase Agreement or this Consent for directing such payments to Lender in accordance with this subsection (a).

(b) SMUD agrees to deliver duplicates or copies of all notices of default delivered by SMUD under or pursuant to the Power Purchase Agreement to Lender in accordance with the notice provisions of this Consent. SMUD shall deliver any such notices concurrently with delivery of the notice to Seller under the Power Purchase Agreement. In the event of a default or breach by Seller in the performance of any of its obligations under the Power Purchase Agreement, or upon the occurrence or non-occurrence of any event or condition under the Power Purchase Agreement which would immediately or with the passage of any applicable grace period or the giving of notice, or both, enable Buyer to terminate the Power Purchase Agreement or to suspend performance of its obligations thereunder (hereinafter, a "Default"), Buyer shall not terminate the Power Purchase Agreement or suspend performance of its obligations thereunder until it first gives written notice of such Default to Lender and affords Lender a period of time until (i) the expiration of the Seller's cure period under the Power Purchase Agreement, if any, plus (ii) (x) thirty (30) days after expiration of such cure period if such Default is the failure to pay amounts to Buyer which are due and payable under the Power Purchase Agreement, or (y) sixty (60) days after expiration of such cure period if such Default is a non-payment Default, in each such case, to cure such Default (provided that during the applicable cure period Lender or Seller continues to perform each of Seller's other obligations under the Power Purchase Agreement). If (i) possession of the Project is necessary to cure such Default or (ii) if the Default can only be cured by the Seller and is not curable by Lender, such as the insolvency, bankruptcy, general assignment for the benefit of the secured parties under the Financing Agreement, or appointment of a receiver, trustee, custodian or liquidator of the Seller or its properties, and, in each such case, Lender or its successor(s), assignee(s) and/or designee(s) declares an "Event of Default" under the Financing Agreement and Lender commences foreclosure proceedings or any other proceedings necessary to take possession of the Project, Lender or its successors(s), assignee(s) and/or designee(s) will be allowed a reasonable period to complete such proceedings; provided that, once commenced, Lender, or its successor(s), assignee(s) and/or designee(s) shall pursue such proceedings with due dispatch; and provided further, that if the Default can only be cured by the Seller and is not curable by Lender, such as the insolvency, bankruptcy, general assignment for the benefit of the secured parties under the Financing Agreement, or appointment of a receiver, trustee, custodian or liquidator of the Seller or its properties, Lender shall be entitled to assume in writing the rights and obligations of Seller under the Power Purchase Agreement and provided such assumption occurs, Buyer shall not be entitled to terminate the Power Purchase Agreement or suspend its performance thereunder as a result of such Default so long as Lender or its successor(s), assignee(s) and/or designee(s) continue to perform all of Seller's obligations (other than those that can only be performed by Seller). If either the Lender or its successor(s), assignee(s) and/or designee(s) is prohibited by any court order or bankruptcy or insolvency proceedings of Seller from curing the Default or from commencing or prosecuting such proceedings, the foregoing time periods shall be extended by the period of such prohibition, provided that Lender or its successor(s), assignee(s) and/or designee(s) is pursuing relief from such prohibition with due dispatch. SMUD shall recognize the Lenders or their designee(s) or assignee(s) as the applicable party under the Power Purchase Agreement provided that such Lender or their designee(s) or assignee(s) assume in writing the obligations of Seller under the Power Purchase Agreement, including, without limitation, satisfaction and compliance with all credit provisions of the Power Purchase Agreement and provided further that such Lender or their designee(s) or assignee(s) has a creditworthiness and total credit support at least equal to that of Seller as of the date hereof. Seller shall pay Buyer \$20,000 per assignment of PPA and/or IA to cover Buyer's internal and external costs associated with

such assignment. For the avoidance of doubt, Seller's payment of \$20,000 is the full reimbursement of expenses for assignment of both the PPA and IA.

I In the event that the Agreement is rejected by a trustee or debtor-in-possession in any bankruptcy or insolvency proceeding, and if, within thirty (30) days after such rejection, the Lender shall so request, SMUD will execute and deliver to Lender a new power purchase agreement, which shall be on the same terms and conditions as the original Agreement for the remaining term of the original Power Purchase Agreement before giving effect to such rejection, and which shall require Lender to cure any defaults then existing under the original Power Purchase Agreement. Notwithstanding the foregoing, the execution of any new power purchase agreement will be subject to approval by SMUD's Board of Directors to the extent required by SMUD's policies and receipt of all regulatory approvals required by law, including those associated with any renewable energy or environmental objectives met by, or required of, the original Power Purchase Agreement. SMUD will use good faith efforts to promptly obtain (if applicable) such Board approval and any necessary regulatory approvals.

(d) In the event Lender or its designee(s) or assignee(s) elect(s) to perform Seller's obligations under the Agreement, succeed to Seller's interest under the Power Purchase Agreement, or enter into a new power purchase agreement as provided in subparagraph 2I above, the recourse of SMUD against Lender or its designee(s) and assignee(s) shall be limited to such party or parties' interests in the Project, the credit support required under the Power Purchase Agreement, and any currently existing guaranties made to the benefit of SMUD by Seller, Seller's Affiliates or Seller's insurers to the extent such guaranties have not been exhausted at the time of assignment.

I In the event Lender or its designee(s) or assignee(s) succeed to Seller's interest under the Power Purchase Agreement, Lender or its designee(s) or assignee(s) shall cure any then-existing payment and performance defaults under the Power Purchase Agreement, except any performance defaults of Seller itself, which by their nature are not susceptible of being cured. Lender and its designee(s) or assignee(s) shall have the right to assign their interest in the Power Purchase Agreement to a person or entity to whom Seller's interest in the Project is transferred, provided such transferee assumes in writing the obligations of Seller under the Power Purchase Agreement and has a creditworthiness and total credit support at least equal to that of Seller as of the date hereof. Upon such assignment and assumption in writing, Lender and its designee(s) or assignee(s) (including their agents and employees) shall be released from any further liability thereunder accruing from and after the date of such assignment, to the extent of the interest assigned.

3. REPRESENTATIONS AND WARRANTIES.

(a) SMUD hereby represents and warrants that as of the date of this Consent:

- i. It (1) is duly formed and validly existing under the laws of the State of California, and (2) has all requisite power and authority to enter into and to perform its obligations hereunder and under the Power Purchase Agreement, and to carry out the terms hereof and thereof and the transactions contemplated hereby and thereby;
- ii. the execution, delivery and performance of this Consent and the Power Purchase Agreement have been duly authorized by all necessary action on its part and do not require any approvals, material filings with, or consents of any entity or person which have not previously been obtained or made;
- iii. this Consent and the Power Purchase Agreement are in full force and effect;
- iv. this Consent and the Power Purchase Agreement have been duly

executed and delivered on its behalf and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as the enforceability thereof may be limited by (1) bankruptcy, insolvency, reorganization or other similar laws affecting the enforcement of creditors' rights generally and (2) general equitable principles (whether considered in a proceeding in equity or at law);

- v. there is no litigation, investigation or other proceeding pending for which SMUD has received service of process or, to SMUD's actual knowledge, threatened against SMUD relating solely to this Consent, the Power Purchase Agreement and the transactions contemplated hereby and thereby;
- vi. the execution, delivery and performance by it of this Consent, the Agreement, and the consummation of the transactions contemplated hereby, will not result in any violation of, breach of or default under any term of any material contract or material agreement to which it is a party or by which it or its property is bound, or of any material requirements of law presently in effect having applicability to it, the violation, breach or default of which could have a material adverse effect on its ability to perform its obligations under this Consent;
- vii. neither SMUD nor, to SMUD's actual knowledge, any other party to the Power Purchase Agreement, is in default of any of its obligations thereunder, and no disputes exist between Buyer and Seller thereunder; and
- viii. to SMUD's actual knowledge, (1) no Force Majeure event exists under, and as defined in, the Power Purchase Agreement and (2) no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable either SMUD or Seller to terminate or suspend its obligations under the Power Purchase Agreement.

4. CONFIRMATION. SMUD will not, without the prior written consent of Lender (such consent not to be unreasonably withheld), (i) cancel or terminate the Power Purchase Agreement, or consent to or accept any cancellation, termination or suspension thereof by Seller, (ii) sell, assign or otherwise dispose (by operation of law or otherwise) of any part of its interest in the Power Purchase Agreement, except as provided in the Power Purchase Agreement, or (iii) amend or modify the Power Purchase Agreement.

5. NOTICES. All notices required or permitted hereunder shall be in writing and shall be effective (a) upon receipt if hand delivered, (b) upon telephonic verification of receipt if sent by facsimile and (c) if otherwise delivered, upon the earlier of receipt or seven (7) Business Days after being sent registered or certified mail, return receipt requested, with proper postage affixed thereto, or by private courier or delivery service with charges prepaid, and addressed as specified below:

If to SMUD:

[_____]

[_____]

[_____]

Telephone No.: [_____]

Telecopy No.: [_____]

Attn: [_____]

If to Lender:

[_____]

[_____]

[_____]

Telephone No.: [_____]

Telecopy No.: [_____]

Attn: [_____]

If to Seller:

[_____]

[_____]

[_____]

Telephone No.: [_____]

Telecopy No.: [_____]

Attn: [_____]

Any party shall have the right to change its address for notice hereunder to any other location within the United States by giving thirty (30) days' written notice to the other parties in the manner set forth above.

6. ASSIGNMENT, TERMINATION, AMENDMENT. This Consent shall be binding upon and benefit the successors and assigns of the parties hereto and their respective successors, transferees and assigns (including without limitation, any entity that refinances all or any portion of the obligations under the Financing Agreement). SMUD agrees (a) to confirm such continuing obligation in writing upon the reasonable request of (and at the expense of) Seller, Lender or any of their respective successors, transferees or assigns, and (b) to cause any successor-in-interest to SMUD with respect to its interest in the Power Purchase Agreement to assume, in writing in form and substance reasonably satisfactory to Lender, the obligations of SMUD hereunder. Any purported assignment or transfer of the Power Purchase Agreement not in conjunction with the written instrument of assumption contemplated by the foregoing clause (b) shall be null and void. No termination, amendment, or variation of any provisions of this Consent shall be effective unless in writing and

signed by the parties hereto. No waiver of any provisions of this Consent shall be effective unless in writing and signed by the party waiving any of its rights hereunder.

7 GOVERNING LAW. This Consent shall be governed by the laws of the State of California applicable to contracts made and to be performed in such State. THE STATE COURTS SITUATED IN THE STATE OF CALIFORNIA SHALL HAVE EXCLUSIVE JURISDICTION TO RESOLVE ANY DISPUTES WITH RESPECT TO THIS CONSENT AND AGREEMENT WITH SMUD, SELLER, ASSIGNOR, AND LENDER IRREVOCABLY CONSENTING TO THE JURISDICTION THEREOF FOR ANY ACTIONS, SUITS, OR PROCEEDINGS ARISING OUT OF OR RELATING TO THIS CONSENT.

8 COUNTERPARTS. This Consent may be executed in one or more duplicate counterparts, and when executed and delivered by all the parties listed below, shall constitute a single binding agreement.

9 SEVERABILITY. In case any provision of this Consent or the obligations of any of the parties hereto, shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions, or the obligations of the other parties hereto, shall not in any way be affected or impaired thereby.

10. ACKNOWLEDGMENTS BY SELLER. Seller, by its execution hereof, acknowledges and agrees that neither the execution of this Consent, the performance by SMUD of any of the obligations of SMUD hereunder, the exercise of any of the rights of SMUD hereunder, or the acceptance by SMUD of performance of the Power Purchase Agreement by any party other than Seller shall (1) release Seller from any obligation of Seller under the Power Purchase Agreement, (2) constitute a consent by SMUD to, or impute knowledge to SMUD of, any specific terms or conditions of the Financing Agreement, the Security Agreement or any of the other Financing Documents, or (3) except as expressly set forth in this Consent, constitute a waiver by SMUD of any of its rights under the Power Purchase Agreement. Seller and Lender acknowledge hereby for the benefit of SMUD that this Consent does not alter, amend, modify or impair (or purport to alter, amend, modify or impair) any provisions of the Power Purchase Agreement except as provided herein.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

[SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties hereto by their officers thereunto duly authorized, have duly executed this Consent as of the date first set forth above.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

By: _____

Name: _____

Title: _____,

a _____

[LENDER]

By: _____

Name: _____

Title: _____, as Lender

[____]

By: _____

Name: _____

Title: _____

**Exhibit M
Reserved**

:

Exhibit N

PROJECT MILESTONE SCHEDULE

Below is a list of key project milestones and the targeted completion date for each. Completion Dates are based on expected PPA COD by Dec 31, 2023, and sequential order of completion is required. Additional milestone information and requirements are provided in SMUD's Policy and Procedure 11-01 "Interconnection Guidelines," Rule 16, and Rule 21. Additional milestones are identified in the IA.

Milestone	Responsible Party	Completion Date	Contract
Secure Real Estate and provide SMUD necessary easement(s) to interconnect to 69kV System approved by SMUD Real Estate dept. Submittal to SMUD must be delivered 30 days prior to Completion Date	Seller	Nov 30, 2021	IA
Approval to Build Letter from SMUD.	SMUD	March 1, 2022	PPA
Submittal of final versions of single line drawing, substation layout and elevation, and site plans with GPS coordinates	Seller	>30 days prior to SMUD's issuance of letter	
Completed Environmental Review (CEQA/NEPA)	Seller	June 1, 2022	PPA
Secure Land Use/Environmental Permits	Seller	August 1, 2022	PPA
Building Permit – copy delivered to SMUD	Seller	Sept 1, 2022	PPA
Substation 100% Construction Documents	Seller	Sept 1, 2022	IA
SCADA Data Points list submitted to SMUD	Seller	Dec 1, 2022	IA
SMUD Line Design finalized	SMUD	Feb 28, 2023	IA
Seller delivers conforming design package documentation to SMUD (as required by Rule 16 and Rule 21), and a copy of the Building Permit	Seller	>6 months prior to Feb 28, 2023	IA
Project substation construction complete	Seller	Oct 1, 2023	IA
SMUD Line Construction complete	SMUD	Nov 1, 2023	IA
Facility Owner Energization Test Plan submitted to SMUD	Seller	>180 days prior to start of testing	IA
Permission to soak transformer	SMUD	Following submittal of Test Plan and completion of substation completion	IA
Permission to Operate	SMUD	Following transformer soak	IA
Facility demonstrates Expected Capacity	Seller	Following Permission to Operate	IA
Curtailment testing	Seller/SMUD	Following demonstration of Expected Capacity	IA
Energization Test Completion letter and acceptance by SMUD	Seller	Following Energization Test	IA
COD	Seller	December 31, 2023	PPA
GCOD	Seller	December 31, 2024	PPA

Upon mutual consent of the Parties, a new Exhibit N may be issued., When updated, the Parties will insert a new effective date for this Exhibit N, which will replace the prior Exhibit N.

Effective Date Month, Day, Year _____

Signature of Seller

Signature of SMUD

Exhibit O
Reserved

EXHIBIT P
METERING DIAGRAM

Sloughouse – Metering Diagram

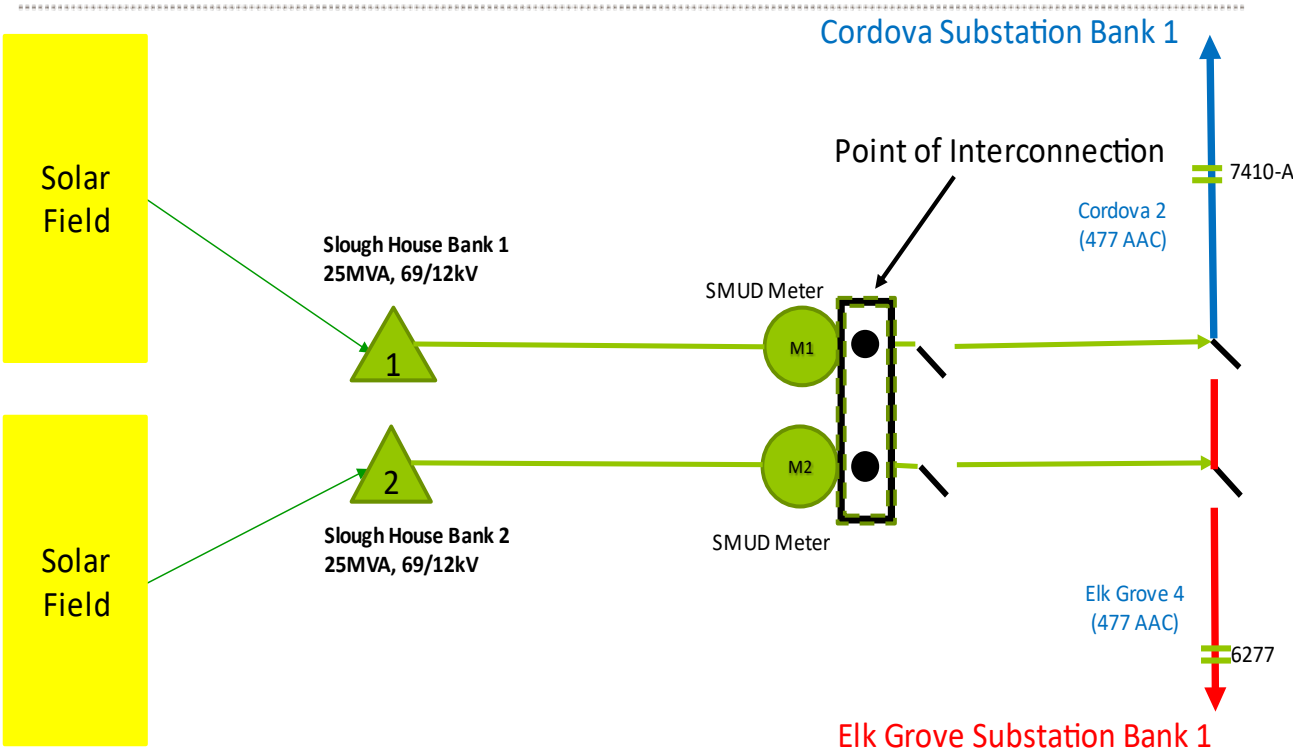


EXHIBIT Q
FORM OF LETTER OF CREDIT

LETTER OF CREDIT

To: Sacramento Municipal Utility District
Energy Contracts Administration
6301 S Street, MS A404
Sacramento, CA 95817-1899

Re: Our Irrevocable Standby Letter of Credit No. [_____]
In the Amount of US\$ [_____] ([_____] and xx/100 U.S. Dollars)

Gentlemen:

We hereby open our irrevocable standby Letter of Credit Number No.[_____] in favor of the Sacramento Municipal Utility District ("Beneficiary"), by order and for account of [_____] ("Account Party"), [company address], available at sight upon demand at our counters, at [_____] , or upon presentation by facsimile transmission at [_____] , for an amount of US\$ [_____] ([_____] and xx/100 U.S. Dollars) and against presentation one of the following documents:

1- Statement signed by a person purported to be an authorized representative of Beneficiary stating that: [_____] (the "Seller") is in default under the agreement between Beneficiary and Seller, dated [_____] , or under any transaction contemplated thereby (whether by failure to perform or pay any obligation thereunder or by occurrence of a "default", "event of default" or similar term as defined in such agreement, any other agreement between Beneficiary and Seller, or otherwise). The amount due to Beneficiary is US \$_____."

Or

2. Statement signed by a person purported to be an authorized representative of Beneficiary stating that: "[_____] ("Seller") has terminated the agreement between Beneficiary and Seller dated [_____] pursuant to such agreement. The amount due to Beneficiary is US \$_____."

Or

3. Statement signed by a person purported to be an authorized representative of Beneficiary stating that: "as of the close of business on _____[insert date, which is less than forty-five (45) days prior to the expiration date of the Letter of Credit] you have provided written notice to us indicating your election not to permit extension of this Letter of Credit beyond its current expiry date. The amount due to Beneficiary, whether or not a default has occurred, is U.S. \$_____."

Special Conditions:

- All costs and banking charges pertaining to this Letter of Credit are for the account of Account Party.
- Partial and multiple drawings are permitted.
- Presentation of the Letter of Credit and Documents 1, 2 or 3 above may be made (i) in person, (ii) by first class certified and registered U.S. mail, by (iii) overnight mail on or before the expiration date or (iv) by facsimile transmission.

This Letter of Credit expires on [one year anniversary of date of issuance] at our counters.

We hereby engage with Beneficiary that upon presentation or facsimile transmission of a document as specified under and in compliance with the terms of this Letter of Credit, this Letter of Credit will be duly honored in the amount stated in Document 1, 2 or 3 above. If presentation is made by facsimile transaction, original documents are not required. If a document or facsimile transmission is so presented by 1:00 pm New York time on any banking day, we will honor the same in full in immediately available funds on the next banking day and, if so presented after 1:00 pm New York time on a banking day, we will honor the same in full in immediately available funds by noon on the second succeeding banking day.

It is a condition of this Letter of Credit that it shall be deemed automatically extended without an amendment for a one year period beginning on the present expiry date hereof and upon each anniversary of such date, unless at least ninety (90) days prior to any such expiry date we have sent you written notice by registered mail or overnight courier service that we elect not to permit this Letter of Credit to be so extended beyond the then current expiry date, and it will expire on its then current expiry date. No presentation made under this Letter of Credit after such expiry date will be honored.

Except as stated herein, this letter of credit is not subject to any condition or qualification and is our individual obligation which is in no way contingent upon reimbursement or any right of subrogation. We irrevocably waive any and all rights of subrogation, whether as provided by statute or otherwise, now or hereafter that might, but for such waiver exist, in respect to this letter of credit or any payment we make under it, as to the Applicant, Beneficiary, or the transaction between Beneficiary and [_____]. We further give irrevocable notice that we are not now and will not be the secondary obligor or co-obligor of [_____]'s obligation and liabilities to Beneficiary for any purpose. Our obligations to Beneficiary under this letter of credit are our primary obligations and are strictly as stated herein

We agree that if this Letter of Credit would otherwise expire during, or within 30 days after, an interruption of our business caused by an act of god, riot, civil commotion, insurrection,

act of terrorism, war or any other cause beyond our control or by any strike or lockout, then this Letter of Credit shall expire on the 30th day following the day on which we resume our business after the cause of such interruption has been removed or eliminated and any drawing on this Letter of Credit which could properly have been made but for such interruption shall be permitted during such extended period.

This Letter of Credit shall be governed by the International Standby Practices 1998, International Chamber of Commerce Publication No. 590 ("ISP98"), except to the extent that the terms hereof are inconsistent with the provisions of the ISP98, in which case the terms of this Letter of Credit shall govern.

[____], a [_____]

Authorized Signature(s)

EXHIBIT R
FORM OF LIMITED ASSIGNMENT

This Limited Assignment Agreement (this “**Assignment Agreement**” or “**Agreement**”) is entered into as of [_____] (the “**Effective Date**”) by and among _____, LLC, a Delaware limited liability company (“**PPA Seller**”), _____, a California municipal utility district (“**PPA Buyer**” or “**SMUD**”), and J. Aron & Company LLC, a New York limited liability company (“**J. Aron**”), and relates to that certain power purchase agreement (the “**PPA**”) between PPA Buyer and PPA Seller as described on Appendix 1. Unless the context otherwise specifies or requires, capitalized terms used but not defined in this Agreement have the meanings set forth in the PPA.

In consideration of the premises above and the mutual covenants and agreements herein set forth, PPA Seller, PPA Buyer and J. Aron (the “**Parties**” hereto; each is a “**Party**”) agree as follows:

1. Limited Assignment and Delegation.

- (a) PPA Buyer hereby assigns, transfers and conveys to J. Aron all right, title and interest in and to the rights of PPA Buyer under the PPA to purchase and accept delivery of the products described on Appendix 1 (the “**Assigned Products**”) in accordance with the terms of the PPA during the Assignment Period (as defined in Appendix 1), as such rights may be limited or further described in the “Further Information” section on [Appendix 1] (the “**Assigned Product Rights**”). All other rights of PPA Buyer under the PPA are expressly reserved for PPA Buyer.
- (b) PPA Buyer hereby delegates to J. Aron the obligation to pay for all Assigned Products that are actually purchased and delivered to J. Aron pursuant to the Assigned Product Rights during the Assignment Period (the “**Delivered Product Payment Obligation**” and together with the Assigned Product Rights, collectively the “**Assigned Rights and Obligations**”). Notwithstanding the foregoing, all obligations of PPA Buyer under the PPA (including all Delivered Product Payment Obligations) are expressly retained by PPA Buyer, and remain an obligation of PPA Buyer notwithstanding the assignment of the Assigned Products or the delegation to J. Aron of any Delivered Product Payment Obligations. To the extent J. Aron fails to make any payment under the PPA for the Assigned Products under and in accordance with the PPA by the applicable due date for set forth in the PPA, PPA Buyer agrees that it will remain responsible for such payment and shall make such payment to PPA Seller within five (5) Business Days (as defined in the PPA) of receiving notice of such non-payment from PPA Seller.
- (c) J. Aron hereby accepts and PPA Seller hereby consents and agrees to the assignment, transfer, conveyance and delegation described in clauses (a) and (b) above, subject to PPA Buyer’s retention and assumption of all obligations of the PPA Buyer under the PPA.

- (d) All rights to dispatch and schedule the Project and the Assigned Products shall be retained by PPA Buyer and, for avoidance of doubt, J. Aron shall not have any such rights. All dispatch and scheduling of the Project and the Assigned Products and other communications related to the PPA shall take place between PPA Buyer and PPA Seller pursuant to the terms of the PPA; provided that (i) PPA Buyer will provide to J. Aron copies of all scheduling communications, billing statements, generation reports and other notices delivered under the PPA during the Assignment Period contemporaneously upon delivery thereof to the other party to the PPA; (ii) title to Assigned Product will pass to J. Aron upon delivery by PPA Seller in accordance with the PPA; and (iii) PPA Buyer is hereby authorized by J. Aron to and shall act as J. Aron's agent with regard to exercising any and all rights under the PPA relating to dispatching the Project and scheduling Assigned Product.
- (e) PPA Seller acknowledges that J. Aron has the right to purchase receivables due from PPA Buyer for any Assigned Products purchased and delivered under the PPA. To the extent J. Aron purchases any such receivables due from PPA Buyer, J. Aron may transfer such receivables to PPA Seller and apply the face amount thereof as a reduction to any Delivered Product Payment Obligation. Notwithstanding the foregoing, (i) PPA Buyer shall ensure that all payments due to PPA Seller under the terms of the PPA are made to PPA Seller in accordance with the terms of the PPA and (ii) to the extent either (x) J. Aron does not pay PPA Seller for any Delivered Product Payment Obligation, or (y) any Delivered Product Payment Obligation is reduced as described in the preceding sentence, PPA Buyer shall pay PPA Seller for any such failure to pay or reduction, such that PPA Seller receives all payments due to PPA Seller in accordance with the terms of the PPA.

2. Assignment Early Termination.

- (a) The Assignment Period may be terminated early upon the occurrence of any of the following:
- (1) delivery of a written notice of termination by either J. Aron or PPA Buyer to each of the other Parties hereto;
 - (2) delivery of a written notice of termination by PPA Seller to each of J. Aron and PPA Buyer following J. Aron's failure to pay when due any amounts owed to PPA Seller in respect of any Delivered Product Payment Obligation and such failure continues for one business day following receipt by J. Aron of written notice thereof;
 - (3) delivery of a written notice of termination by PPA Seller to each of J. Aron and PPA Buyer following (i) J. Aron's breach of any term of this Assignment or (ii) PPA Buyer's breach of any term of this Assignment;

- (4) delivery of a written notice of termination by PPA Seller to each of J. Aron and PPA Buyer following PPA Buyer's failure to pay when due any amounts owed to PPA Seller in respect of any receivables due from PPA Buyer for any Assigned Products;
 - (5) delivery of a written notice of termination by PPA Seller to each of J. Aron and PPA Buyer following (i) PPA Buyer's breach of the PPA or (ii) J. Aron's breach of the PPA; or
 - (6) delivery of a written notice of termination by PPA Seller to each of J. Aron and PPA Buyer following PPA Buyer's breach of the [Indemnity Agreement].
- (b) The Assignment Period will end as of the date specified in the termination notice, which date shall not be earlier than the end of the last day of the calendar month in which such notice is delivered if termination is pursuant to clauses (a)(1) or (a)(2).
- (c) All Assigned Rights and Obligations shall revert from J. Aron to PPA Buyer upon the expiration of or early termination of the Assignment Period, provided that (i) J. Aron shall remain responsible for the Delivered Product Payment Obligation with respect to any Assigned Product delivered to J. Aron prior to the end of the Assignment Period, and (ii) any legal restrictions on the effectiveness of such reversion (whether arising under bankruptcy law or otherwise) shall not affect the expiration or early termination of the Assignment Period. Notwithstanding anything herein to the contrary, PPA Buyer's obligations under the second and third sentence of Section 1(b) and the last sentence of Section 1(e) shall survive any termination of this Assignment.

3. Representations and Warranties. The PPA Buyer represents and warrants to J. Aron that (a) the PPA is in full force and effect; (b) no event or circumstance exists (or would exist with the passage of time or the giving of notice) that would give either Party the right to terminate the PPA or suspend performance thereunder; and (c) all of its obligations under the PPA required to be performed on or before the Assignment Period Start Date have been fulfilled.

4. Notices. Any notice, demand, or request required or authorized by this Assignment Agreement to be given by one Party to another Party shall be delivered in accordance with Article 15 and Exhibit I of the PPA and to the addresses of each of PPA Seller and PPA Buyer specified in the PPA. PPA Seller and PPA Buyer agree to notify J. Aron of any updates to such notice information. Notices to J. Aron shall be provided to the following address, as such address may be updated by J. Aron from time to time by notice to the other Parties:

J. Aron & Company LLC
200 West Street
New York, New York 10282-2198

Email: gs-prepay-notices@gs.com

5. Miscellaneous. Articles 1.2 (Rules of Interpretation), 22 (Severability), 23 (Counterparts), and 24 (General) of the PPA are incorporated by reference into this Agreement, *mutatis mutandis*, as if fully set forth herein.

6. Governing Law, Jurisdiction, Waiver of Jury Trial

(a) **Governing Law.** This Assignment Agreement and the rights and duties of the parties under this Assignment Agreement will be governed by and construed, enforced and performed in accordance with the laws of the state of [California], without reference to any conflicts of laws provisions that would direct the application of another jurisdiction's laws.

(b) **Jurisdiction.** Each party submits to the exclusive jurisdiction of the [state courts of California], or the federal courts of the United States of America for the Northern District of California, sitting in the city and county of San Francisco. Where a lawsuit arises under or in relation to the PPA, or [Indemnity Agreement], the PPA Seller may, at its option, consolidate the disputes, and PPA Buyer and J. Aron hereby consent to any such consolidation to the maximum extent permitted by applicable Law. PPA Buyer and J. Aron agree to join as defendants in any lawsuit or other legal action under or arising out of the PPA or [Indemnity Agreement].

(c) **Waiver of Right to Trial by Jury.** Each party waives, to the fullest extent permitted by applicable law, any right it may have to a trial by jury in respect of any suit, action or proceeding relating to this assignment agreement.

7. Assignment. PPA Buyer and J. Aron shall not assign, transfer or sell this Agreement without PPA Seller's prior written consent. PPA Seller may, without the consent of PPA Buyer or J. Aron, assign this Agreement (i) together with any permitted assignment of the PPA or (ii) as collateral to any financing party. In connection with any financing by PPA Seller for the Project, PPA Buyer and J. Aron shall each provide such consents to collateral assignments (which consent(s) from J. Aron shall not require any extended cure periods or any requirement for a replacement agreement), estoppels, opinions (which opinions may only be requested to be provided by PPA Buyer), information or other documents as may be reasonably requested, in accordance with market practice, by PPA Seller or the financing parties in connection with the execution of the debt, tax equity or other financing of the Project. Without limiting the foregoing, at the reasonable request of PPA Seller, PPA Buyer shall confirm in writing to the applicable financing parties under any such financing and J. Aron shall acknowledge, PPA Buyer's obligations under the second and third sentence of Section 1(b) and the last sentence of Section 1(e).

[Remainder of Page Intentionally Blank]

IN WITNESS WHEREOF, the Parties have executed this Assignment Agreement effective as of the date first set forth above.

[Add signature blocks]

Authorized Signature(s)

President Bui-Thompson then turned to Discussion Calendar Item 9, a three-part item regarding the Solano 4 Wind Project to a) certify the California Environmental Quality Act (CEQA) Solano 4 Wind Project (Project) Final Environmental Impact Report (FEIR), adopt the Mitigation Monitoring and Reporting Program for the Project, adopt the CEQA Findings and Statement of Overriding Considerations in Connection with the Solano 4 Wind Project, and approve the Project, b) determine and adopt Findings that there is No Feasible Alternative to the Project, rendering zoning ordinances inapplicable to the Project pursuant to California Government Code section 53096, and c) determine the Project is consistent with the purposes of the State Aeronautics Act and adopt Findings, overriding a determination by the Solano County Airport Land Use Commission that the Project is inconsistent with the Travis Air Force Base Land Use Compatibility Plan.

Patrick Durham, Director of Environmental and Real Estate Services provided a presentation on Discussion Calendar Item 9.a. A copy of the slides used in his presentation is attached to these minutes.

Joe Schofield, Deputy General Counsel, provided a presentation on Discussion Calendar Items 9.b. and 9.c. A copy of the slides used in his presentation is attached to these minutes.

President Bui-Thompson called for public comment on Discussion Calendar Item 9.

Tom Enslow on behalf of California Unions for Reliable Energy (CURE) spoke in support of approval of Discussion Calendar Item 9.

General Counsel Lewis called for Danny Bernardini, but he was not in attendance.

Ross Sagun, Commissioner for Solano County Airport Land Use Commission (ALUC) spoke in opposition to approval of Discussion Calendar Item 9.

Ken Miller, Business Agent Organizer for Iron Workers Local 378, spoke in support of approval of Discussion Calendar Item 9.

Nico Rivera, Business Agent for Iron Workers Local 378, spoke in support of approval of Discussion Calendar Item 9.

Lori Mazzella, counsel for Solano ALUC, spoke in opposition to approval of Discussion Calendar Item 9.

Bill Seiden, Commissioner for Solano County ALUC spoke in opposition to approval of Discussion Calendar Item 9.

John Vasquez, District 4 Supervisor for the Solano County Board of Supervisors, spoke in opposition to approval of Discussion Calendar Item 9.

Steve Vancil, Commissioner for Solano County ALUC spoke in opposition to approval of Discussion Calendar Item 9.

Mitch Mashburn, District 5 Supervisor for the Solano County Board of Supervisors, spoke in opposition to approval of Discussion Calendar Item 9.

Catherine Cook, Commissioner for Solano County ALUC spoke in opposition to approval of Discussion Calendar Item 9.

Nancy Rader, Executive Director of the California Wind Energy Association, spoke in support of approval of Discussion Calendar Item 9.

Public comment was received and read into the record regarding Discussion Calendar Item 9, copies of which are attached to these minutes, from the following members of the public:

- Peter Mackin for 350 Sacramento
- Jorge A. Romero
- Sam Appel for Blue Green Alliance
- Doug LeMoine

Public comment was received and entered into the record regarding Discussion Calendar Item 9, a copy of which is attached to these minutes, from the following member of the public:

- James W. Laughlin

After some discussion, Director Kerth moved for approval of Discussion Calendar Item 9, Director Sanborn seconded, and Resolution No. 21-08-05 was unanimously approved.

RESOLUTION NO. 21-08-05

WHEREAS, this Board has adopted policies stating this Board is committed to meeting customers' electrical energy needs (SD-4); demonstrating environmental leadership through community engagement, continuous improvement in pollution prevention, carbon reduction, energy efficiency, and conservation (SD-7); and providing a power supply that is sustainable (SD-9); and

WHEREAS, SMUD's Solano Wind Project in the Solano Wind Resource Area, Solano County, now has a rated capacity of 230 MW of wind energy; and

WHEREAS, the **Solano 4 Wind Project (Project)** proposes to increase capacity by up to 91 MW to a total of 306 MW by decommissioning existing wind turbine generators (WTGs) at the Project site, constructing new, more technologically advanced WTGs, constructing an associated electrical collection system and access roads, implementing minor upgrades to the existing Russell Substation, and operating and maintaining the new WTGs; and

WHEREAS, the **Project** would help reduce the greenhouse gas footprint of SMUD's electrical generation portfolio, advance achievement of SMUD's **2030 Carbon Plan**, and help make progress toward State goals in addressing the global climate crisis; and

WHEREAS, as required by the **California Environmental Quality Act (CEQA)**, a **Notice of Preparation** was made available for public review on January 9, 2019, and a public meeting was held on January 22, 2019; and

WHEREAS, the **Project Draft Environmental Impact Report (DEIR)** was issued on July 23, 2019, and **Notice of Availability** letters were sent to relevant agencies and members of the public within one mile of the **Project**, and a public meeting was held on August 20, 2019; and

WHEREAS, public comments received during the 45-day public review period were addressed in the **Project Final Environmental Impact Report (Project FEIR)**, which provides the **CEQA** analysis for the **Project**, and

the **Mitigation Monitoring and Reporting Program** incorporated environmental avoidance, mitigation and improvement measures; and

WHEREAS, the **Project FEIR** was issued for public review for a 10-day period on July 30, 2021; and

WHEREAS, the **Project FEIR** identifies potentially significant impacts that may result from construction and operation of the **Project**, and most impacts (e.g., aesthetics, biological, archaeological, historical, and Tribal cultural resources, geology and soils, greenhouse gas emissions and energy, hazards and hazardous materials, hydrology and water quality, land use, noise, and transportation) are mitigatable, but certain construction impacts to air quality cannot be mitigated to a less-than-significant level and would remain significant and unavoidable, which requires the SMUD Board of Directors to make a **Statement of Overriding Considerations** when certifying the **Project FEIR** and approving the **Project**; and

WHEREAS, the **Project FEIR** and **Mitigation Monitoring and Reporting Program** are located in the records of SMUD under the custody of the Environmental Services Department; and

WHEREAS, the **Project** site is located within the **Solano County Wind Resource Area (WRA)**; and

WHEREAS, the **Project** is not subject to the jurisdiction of the **Solano County Airport Land Use Commission (ALUC)** for numerous reasons, including due to the public power generation zoning exemption in Government Code Section 53091; federal preemption pursuant to the authorities empowering review by the **Federal Aviation Administration**; and the **State Aeronautics Act (Act)** does not grant the **ALUC** the power to review individual projects; and

WHEREAS, in the spirit of inter-agency comity, on April 1, 2021, SMUD submitted an application for advisory review by the **ALUC** of the **Project's** consistency with the **2015 Travis Air Force Base Land Use Compatibility Plan (Travis Plan)**; and

WHEREAS, on May 20, 2021, the **ALUC** erroneously determined that the **Project** is incompatible with the **Travis Plan**; and

WHEREAS, the **Act** grants SMUD the power to overrule the **ALUC's** determination pursuant to Public Utilities Code Section 21676 by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of the **Act**; and

WHEREAS, in the **Findings that the Solano 4 Project Is Consistent with the Purposes of the State Aeronautics Act ("Findings")**, which are attached as Attachment G, the Board has made specific findings, that the **Project** is consistent with the purposes of the **Act**; and

WHEREAS, Government Code Section 53091(e) exempts a local agency's power generation projects from zoning ordinances; and

WHEREAS, Government Code Section 53096 authorizes the governing board of a local agency, by vote of four-fifths of its members, to render a city or county zoning ordinance inapplicable to a proposed use of property if the local agency at a noticed public hearing determines by resolution that there is no feasible alternative to its proposal; and

WHEREAS, mailed notice was provided on August 9, 2021, to the owners of all property within 300 feet of the location of the **Project**, and a notice was posted in a conspicuous place at the **Project** site; and

WHEREAS, in the **Findings that That There Is No Alternative to the Project ("Section 53096 Findings")**, which are attached as Attachment F, the Board has made specific findings, that there is no feasible alternative to the **Project**;

NOW, THEREFORE,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. This Board has reviewed and considered the information in the **Solano 4 Wind Project (Project) Final Environmental Impact Report (FEIR) and Mitigation Monitoring and Reporting Program** and (1) certifies that the **Project FEIR** complies with the **California Environmental Quality Act (CEQA)**; (2) adopts the **Mitigation Monitoring and Reporting Program**, as set forth in **Attachment D**; (3) adopts the **California Environmental Quality Act Findings and Statement of Overriding**

Considerations in Connection With the Solano 4 Wind Project as set forth in **Attachment E**; and (4) approves the **Project**.

Section 2. This Board finds that the **Project** is exempt from the local zoning ordinances, including the **Travis Air Force Base Land Use Compatibility Plan**, pursuant to California Government Code section 53091(e).

Section 3. In the alternative, this Board further determines and adopts **Findings** that there is **No Feasible Alternative** to the **Project**, rendering zoning ordinances inapplicable to the **Project** also pursuant to California Government Code section 53096 as set forth in **Attachment F**.

Section 4. This Board further determines the **Project** is consistent with purposes of the **State Aeronautics Act** and adopts **Findings**, overruling a determination by the **Solano County Airport Land Use Commission** that the **Project** is inconsistent with the **Travis Air Force Base Land Use Compatibility Plan** pursuant to Public Utilities Code sections 21676 and 21676.5 as set forth in **Attachment G**.

Section 5. The Environmental Services Department is directed to file with the County Clerk of Sacramento County, a Notice of Determination, which shall set forth the information required by **CEQA**.

Section 6. Staff is directed to notify **Solano County** that the Board has made **Findings** there is **No Feasible Alternative** to the **Project**, rendering zoning ordinances, including the **Travis Air Force Base Land Use Compatibility Plan**, inapplicable to the **Project** pursuant to California Government Code Sections 53091 and 53096.

Approved: August 19, 2021

INTRODUCED: DIRECTOR KERTH				
SECONDED: DIRECTOR SANBORN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE	X			
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

Sacramento Municipal Utility District Solano 4 Wind Project

Final Environmental Impact Report • July 2021
State Clearinghouse #2019012016



Powering forward. Together.



Sacramento Municipal Utility District

Solano 4 Wind Project

Final Environmental Impact Report

State Clearinghouse #2019012016

July 2021

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Acronyms and Abbreviations

AB	Assembly Bill
ACC	Advanced Clean Car Program
ADLS	Asymmetric Digital Subscriber Line
AFB	Air Force Base
ALUC	Airport Land Use Commissions
APE	Area of Potential Effect
APP	Avian Protection Plan
ARB	California Air Resources Board
ASTM	American Society for Testing and Materials
ATV	all-terrain vehicle
BAAQMD	Bay Area Air Quality Management District
BBCS	Bird and Bat Conservation Strategies
BMP	best management practice
BO	biological opinion
Board	Board of Directors
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC5	California Energy Commission
CERS	California Environmental Reporting Systems
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
CTS	California tiger salamander
CURE	California Unions for Reliable Energy
CV	Central Valley
CWA	Clean Water Act

DHS	Department of Homeland Security
DNH	Determinations of No Hazard
DOD	Department of Defense
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal Resources
Draft EIR	draft environmental impact report
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESAs	environmentally sensitive areas
FAA	Federal Aviation Administration
FDCP	fugitive dust control plan
Final EIR	final environmental impact report
ft	feet
GHG	greenhouse gas
HDD	horizontal directional drilling
HMBP	hazardous materials business plan
HRA	health risk assessment
HSCERP	Hazardous Substance Control and Emergency Response Plan
ITP	incidental take permit
LED	light-emitting diode
LUPC	Land Use Planning Commission
m	meter(s)
MM	Mitigation Measure
MMRP	mitigation monitoring and reporting program
mph	miles per hour
MRT	Mitigation Response Team
MBTA	Migratory Bird Treaty Act
MTCO _{2e}	metric tons of carbon dioxide equivalent
MWh	megawatt hours
NAHC	Native American Heritage Commission
NAS	National Airspace System
NOTAM	Notice to Airmen
NOP	notice of preparation
NO _x	oxides of nitrogen

NPH	Notice of Presumed Hazard
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazards Assessment
PHEV	plug-in hybrid electric vehicle
OSHA	Occupational Health and Safety Administration
PM	particulate matter
PM ₁₀	fine particulate matter
PV	photovoltaic
PRC	Public Resources Code
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SAA	State Aeronautics Act
SCADA	supervisory control and data acquisition
SCEMD	Sacramento County Environmental Management Department
SFB	San Francisco Bay
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SOC	Statement of Overriding Considerations
SOW	Scope of Work
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
SWAPE	Soil/Water/Air Protection Enterprise
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TCR	tribal cultural resource
the Board	SMUD Board of Directors
UAIC	United Auburn Indian Community of the Auburn Rancheria
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WEAP	worker environmental awareness program
WTG	wind turbine generator
YSAQMD	Yolo-Solano Air Quality Management District
ZEV	Zero-Emission Vehicle

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1 Introduction

On July 22, 2019, the Sacramento Municipal Utility District (SMUD) released for public review the draft environmental impact report (Draft EIR) for the proposed Solano 4 Wind Project (project). SMUD proposes to:

- decommission existing wind turbine generators (WTGs) at the project site;
- construct new, more technologically advanced WTGs;
- construct an associated electrical collection system, and access roads;
- implement minor upgrades to the existing Russell Substation; and
- operate and maintain the new WTGs.

1.1 Public Review and Response to Comments

In accordance with Sections 15087 and 15105 of the State CEQA Guidelines, the Draft EIR was circulated for public review and comment to lead and responsible agencies, as well as members of the public, for 45 days (July 22, 2019 through September 6, 2019). SMUD also held a public meeting on August 20, 2019 to receive comments on the Draft EIR. Written comment letters received on the Draft EIR are provided in their entirety in Chapter 2, “Comments and Responses to Comments.”

Responses to each of the comments received are provided in this document as part of the final environmental impact report (Final EIR). Although some of the comments have resulted in changes to the text of the Draft EIR (see Chapter 3, “Corrections and Revisions to the Draft EIR”), none of the changes constitute “significant new information,” which would require recirculation of the Draft EIR. Significant new information is defined in Section 15088.5(a) of the State CEQA Guidelines as follows:

- (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
- (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
- (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project’s proponents decline to adopt it.
- (4) The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

None of these circumstances has arisen from comments on the Draft EIR; therefore, recirculation is not required.

The Draft EIR, Final EIR, and associated appendices are available for review online at: <https://www.smud.org/CEQA> and at the following locations:

Sacramento Municipal Utility District
Customer Service Center
6301 S Street
Sacramento, CA 95817

Sacramento Municipal Utility District
East Campus Operations Center
4401 Bradshaw Road
Sacramento, CA 95827

As required by State CEQA Guidelines Section 15088(b), SMUD has provided a printed or electronic copy (through SMUD's website; see prior discussion) to each public agency that submitted written comments on the Draft EIR with written responses to that public agency's comments at least 10 days prior to certifying the Final EIR.

1.2 Organization of the Responses to Comments

Chapter 2 of the Final EIR consists of the written comments received on the Draft EIR and presents responses to environmental issues raised in the comments (as required by State CEQA Guidelines Section 15132). The focus of the responses to comments is on the disposition of significant environmental issues that are raised in the comments, as required by Section 15088(c) of the State CEQA Guidelines.

Each comment letter has been reproduced with individual comments bracketed and numbered. Responses to the comments follow each letter. For example, the response to the second comment of the first letter would be indicated as Response to Comment 1-2. In some instances, clarifications of the text of the Draft EIR may be required. In those cases, the text of the Draft EIR is revised and the changes compiled in Chapter 3, "Corrections and Revisions to the Draft EIR," to the Draft EIR. The text deletions are shown in ~~strikeout~~ and additions are shown in double underline.

1.3 FAA Compliance Process and Ongoing Federal Coordination

The United States Congress charged the Federal Aviation Administration (FAA) with the responsibility to encourage air commerce in the United States. As part of this responsibility, the FAA is tasked with ensuring air safety and preserving the National Airspace System (NAS). It is through these mandates that the FAA draws its authority to conduct aeronautical studies of tall structures including wind turbines (Aeronautical Study Process, Capitol Airspace Group 2018).

There are eight offices internal to the FAA. In addition, the Department of Defense (DOD), Army, Navy, Air Force and the Department of Homeland Security (DHS) take part in the aeronautical study process. The DoD formal review process occurs concurrently with FAA's aeronautical study. Technicians in each office review each proposed tall structure

location to ensure that the planned structure does not interfere with their areas of responsibility. Once all offices have responded, the airspace specialist, typically a former air traffic controller, assesses all of the responses and subsequently determines whether the planned structure exceeds the imaginary surfaces established under 14 CFR Part 77, Sections 77.17, 77.19 and 77.21. Structures that do not exceed these surfaces are, in most cases, issued favorable Determinations of No Hazard (DNH). Structures that exceed these surfaces are generally issued a Notice of Presumed Hazard (NPH). A NPH letter is meant to be a means for the FAA to notify the developer that the FAA has identified an issue that will require further study to determine whether or not the structure will pose a hazard to air navigation. Typically, the FAA also includes in this letter any objections received by the various responding offices in the FAA, DOD and DHS. If a military objection is raised, due to potential for impact on radar surveillance systems, for example, a Mitigation Response Team (MRT) may be formed. This team would include representatives from any potentially affected air force base. The MRT conducts detailed analyses and, if necessary, negotiates mitigation options with the structure developer. If mitigation options are identified and agreed upon, the Mitigation Oversight Committee will review the solutions (Aeronautical Study Process, Capitol Airspace Group 2018).

It is through the public comment period that the FAA collects information regarding the potential extent of any actual impact of the structure on local flights. Once the comment period closes, the FAA will collect all comments, discard those that are not of valid aeronautical nature, and proceeds to make a final decision. The FAA will issue a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact. The FAA will issue a Determination of No Hazard to Air Navigation when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation. A Determination of No Hazard to Air Navigation will also be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation and may include the following: conditional provisions of a determination, limitations necessary to minimize potential problems, such as the use of temporary construction equipment, supplemental notice requirements, when required, and marking and lighting recommendations, as appropriate. (Aeronautical Study Process, Capitol Airspace Group 2018).

On February 8, 2018, SMUD started meeting with Travis Air Force Base (AFB) to discuss the Solano 4 Wind Project and associated environmental review and project planning processes, project schedule, and studies to be prepared (radar impact study and an obstruction evaluation and airspace analysis). SMUD also met with Solano County on February 28, 2018 to share the same information. Since the February 8, 2018 meeting with Travis AFB, SMUD met with Travis AFB on five separate occasions to discuss the project, including the radar impact study and obstruction evaluation and airspace analysis. SMUD filed applications with the FAA on October 10, 2018 and on February 2, 2019 received separate Determinations of No Hazard to Air Navigation for nineteen (19) Solano 4 turbines with conditions related to marking and lighting. The determinations were subject to third party petitions received by March 3, 2019. While an attorney filed a

letter on behalf of the Airport Land Use Commission (ALUC), the FAA determined that the letter was not an objection, but constituted a series of statements. The third-party submittal period ended, and the determinations became final on March 13, 2019. SMUD notified Travis AFB on April 14, 2020 that SMUD had started the process with the FAA to request extensions for the nineteen (19) DNHs received for the Solano 4 Wind Project. On September 28, 2020 SMUD met with Colonel Simmons of Travis AFB to discuss the project. Key take-away messages from this meeting included Colonel Simmons' request that SMUD continue working with the county and ALUC as part of the FAA DNH extension. It was also stated that Travis AFB would participate in the FAA process, would conduct independent studies, and that Travis AFB would like to understand the cumulative effect of future repowering/development on radar systems. As Travis AFB worked through its own technical evaluation, SMUD scheduled bi-weekly meetings with Travis AFB to provide support and receive updates. These meetings continued until Travis AFB concluded its study. Travis submitted its Solano 4 Wind Project Operational Risk Assessment to the DOD on January 11, 2021. SMUD received the requested extensions for the nineteen (19) DNH for the Solano 4 Wind Project on January 28, 2021, and a letter dated February 9, 2021 from Steven J. Sample, Executive Director, Military Aviation and Installation, Assurance Siting Clearinghouse stating that as a result of its study of the potential impact of SMUD's proposed project, it will not present an adverse impact to military operations (See FAA Determinations in Appendix G of the DEIR and Appendix B of this FEIR).

1.4 Comments that Require Responses

Section 15088(c) of the State CEQA Guidelines specifies that the focus of the responses to comments shall be on the disposition of significant environmental issues. Responses are not required on comments regarding the merits of the project or on issues not related to the project's environmental impacts. Comments on the merits of the proposed project or other comments that do not raise environmental issues will be reviewed by SMUD's Board of Directors (the Board) before an action is taken on the project. The responses address environmental issues and indicate where issues raised are not environmental or address the merits of the project. In the latter instance, no further response is provided.

1.5 Project Decision Process

This document and the Draft EIR together constitute the Final EIR, which will be considered by the Board before a decision on whether to approve the project. If the Board decides to approve the project, it must first certify that the Final EIR was completed in compliance with CEQA's requirements, was reviewed and considered by the Board, and reflects the Board's independent judgment and analysis, as required by State CEQA Guidelines Section 15090. The Board then would be required to adopt findings of fact on the disposition of each significant environmental impact, as required by State CEQA Guidelines Section 15091. If significant and unavoidable impacts (those that cannot be mitigated to a less-than-significant level) would result from the project and the Board chooses to approve the project, the Board would need to adopt a statement of overriding

considerations, pursuant to State CEQA Guidelines Section 15093, explaining the overriding factors that the Board deems allow the project to move forward. Implementing air quality mitigation measures would reduce emissions associated with project construction. However, even after implementation of the recommended mitigation measures, the project's construction emissions would exceed applicable thresholds during certain months of construction. Therefore, this short-term construction impact would be significant and unavoidable and therefore will require a Statement of Overriding Considerations (SOC) from the Board. In the SOW, the SMUD Board states in writing the specific reasons to support its action based on the Final EIR and/or other information in the record. The SOW will be included in the Notice of Determination (California Code of Regulations 15093 (b)) that will be filed with the State Clearinghouse upon project approval by the Board. A Mitigation Monitoring and Reporting Program, which is required by CEQA Guidelines Section 15091(d), has been prepared and is included in Chapter 4 of this Final EIR.

1.6 Revisions to the Draft EIR

As discussed in Section 1.1, "Public Review and Response to Comments," above, CEQA requires recirculation of an EIR when the lead agency adds "significant new information" to an EIR, regarding changes to the project description or the environmental setting, after public notice is given of the availability of a draft EIR for public review under State CEQA Guidelines, California Code of Regulations (CCR) Section 15087, but before EIR certification (State CEQA Guidelines CCR Section 15088.5[a]). Recirculation is not required unless the EIR is changed in a way that would deprive the public of the opportunity to comment on significant new information, including a new significant impact in which no feasible mitigation is available to fully mitigate the impact (thus resulting in a significant and unavoidable impact), a substantial increase in the severity of a disclosed environmental impact, or development of a new feasible alternative or mitigation measures that would clearly lessen environmental impacts but that the project proponent declines to adopt (State CEQA Guidelines CCR Section 15088.5[a]). Recirculation is not required when the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR (State CEQA Guidelines CCR Section 15088.5[b]).

All revisions to the Draft EIR were minor and would not change any of the impact conclusion presented in the Draft EIR. Therefore, recirculation of the EIR would not be required.

1.6.1 *Tribal Consultation*

Assembly Bill (AB) 52 requires that lead agencies undertaking CEQA consult with California Native American Tribes upon the tribes' written request, and evaluate in the EIR the potential for projects to affect tribal cultural resources. Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," of the Draft EIR describes the consultation that has occurred between the tribes and SMUD pursuant to AB 52. Specific

language requested by the tribes was incorporated in the Draft EIR prior to circulation, and consultation has been completed.

2 Comments and Responses to Comments

2.1 Master Response: Land Use and Safety Concerns Related to Project Siting

Several commenters submitted letters disagreeing with SMUD's interpretation of its authority under Government Code section 53091(d) and (e) and asserting that the DEIR was not sufficiently detailed with regards to SMUD's assertion that SMUD is not required to obtain a consistency determination from ALUC for project approval and that further analysis was needed. Commenters also expressed concern regarding potential significant impacts to airport-related land use and safety. They suggested additional information was necessary to ensure that the public and decisionmakers are properly informed and can conduct a meaningful evaluation of the way project impacts were avoided, minimized, or mitigated. The following responses address these issues by topic.

LAND USE

As described in more detail below, SMUD maintains that the Solano 4 Wind Project does not require Airport Land Use Commission Approval (ALUC) approval for the following reasons: 1) Electrical generation/production facilities are exempt from a county's building and zoning ordinances under California Government Code Section 53091, subdivisions (d) and (e); 2) The Federal Aviation Administration (FAA) finding of no significant hazard for the project preempts the ALUC regulations under the Travis Air Force Base (AFB) LUCP regarding air safety, including radar interference (Appendix G FAA Determination); 3) The ALUC does not have authority to review individual projects, such as SMUD's Generation Project, under the State Aeronautics Act, and; 4) Even if the ALUC regulations were to apply to the project, SMUD, as a local agency, has the authority to overrule any ALUC determination of inconsistency under the SAA and the evidentiary record provides justification for doing so.

Please also refer to Downey Brand's letter dated April 26, 2019 in response to the Solano County ALUC comments on SMUD's Notice of Preparation (NOP) for Solano 4 Wind Project included in Appendix C of this FEIR for additional information regarding SMUD's position on this issue.

1. Even if the LUCP were to apply, which it does not, the Solano 4 Wind Project would be exempt from ALUC review because an energy generating/production facility is exempt from a county's zoning and building ordinances under Government Code Section 53091.

SMUD's wind turbine facilities are exempted from the ALUC provisions because under subdivisions (d) and (e) of Section 53091 of the Government Code, the zoning and building ordinances of a county or city shall not apply to the location or construction of facilities for the generation of electrical energy. SMUD, as a municipal utility district, is a local agency for purposes of Section 53091. (See *City of Lafayette v. East Bay Municipal Utilities District* (1993) 16 Cal.App.4th 1005, 1012; 78 Ca1.Atty.Gen.Ops. 31 (1995); see also *Center for Biological Diversity v. County of San Bernardino* (2016) 247 Cal.App.4th 326, 344 fn.4 [county did not have authority to apply building and zoning regulations to water project proposed by local water agency pursuant to Sections 53091 and 53096].) Because a wind turbine facility is an electrical generation facility, the project qualifies for the exemptions under subdivisions (d) and (e) of Section 53091.

2. The only element of the LUCP that could apply to the Solano 4 Wind Project is preempted by federal law.

The ALUC in its LUCP has imposed broad land use controls based on general safety and noise concerns, but in limiting the height of wind turbines specifically, it has relied solely on the narrow and technical issue of alleged radar interference. As to this narrow issue regarding radar system interference that are related to air safety and aviation navigation, the FAA regulations occupy the field and preempt the ALUC's land use regulations. Even California courts have also concluded that the FAA has authority over navigation aids such as air control towers, radio navigation systems, runway markers, and directional beams. (*Bethman v. City of Ukiah* (1989) 216 Cal.App.3d 1395, 1403, 1408; *City of Burbank v. Burbank-Glendale-Pasadena Airport Authority* (1999) 72 Cal.App.4th 366, 379.) For example, in *Big Stone Broadcasting, Inc. v. Lindbloom* (D.S.D. 2001) 161 F. Supp. 2d 1009, the court found that the local regulations cannot veto a radio tower where FAA has already issued a finding of significant hazards, including existing and planned visual flight rules (VFR) operations and procedures. (Id. at 1011-12, 1019.)

In this case, the FAA has already evaluated the project's "impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when

combined with the impact of other existing or proposed structures." (FAA Determination of No Hazard to Air Navigation, dated February 1, 2019, and extensions dated January 28, 2021 (Appendix G FAA Determination). The FAA Determination states that the project's "aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities."

The FAA's analyses of the project's impacts included exceedances of various obstructions standards and concluded that just because a wind turbine is within the line of sight of a radar sensor does not imply that the turbine will result in unacceptable adverse impacts on Air Traffic Control (ATC) operations. While the project turbines would be within the line of sight of the Travis AFB radar facilities, "[s]tudy for possible Visual Flight Rules (VFR) effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations." The FAA thus concluded that while the project turbines "would extend upwards into altitudes commonly used for en route VFR flight," there is no information that the turbines would be "located along a regularly used VFR route or that they would pose a problem for pilots operating en route" or otherwise result in unacceptable adverse impact on ATC operations. The FAA's determination is conclusive. This is consistent with the empirical evidence: SMUD is not aware of any airplane accidents, incidents, or safety issues within the Solano Wind Resource Area throughout the more than 20 years SMUD has been operating wind turbines in Solano County.

Further, the ALUC neglected to file a petition for review of the FAA Determination by the review deadline, and the FAA Determination became final on March 13, 2019. The ALUC has thus waived any challenge to the FAA's Determination of No Hazard (DNH), and the LUCP provisions that rely on unsupported and inaccurate radar interference issues are preempted under the federal law. Therefore, there is no basis for the ALUC review of the project for radar interference or under the visual flight rules.

3. The ALUC does not have authority to review individual projects, such as SMUD's Generation Project, under the SAA.

ALUC review of local actions is greatly limited where local plans are consistent with an LUCP. An ALUC can only review individual projects (1) when there is no LUCP or, (2) when an ALUC has found a local agency's general plan or

specific plan inconsistent with the LUCP, the local agency has neither revised its general plan or specific plan to be consistent with the LUCP nor overruled this determination of inconsistency. (California Airport Land Use Planning Handbook (2002), p. 4-8, citing Pub. Utilities Code, §§ 21675.1(b), 21676.5(a); see also California Airport Land Use Planning Handbook (2011), p. 6-4 for a more recent version of Handbook.) Here, (1) the ALUC has an adopted LUCP, and (2) the ALUC found the Solano County's General Plan consistent with the LUCP and SMUD, as a local agency, does not have a planning document that would be equivalent to a General Plan). As such, the statutory triggers allowing the ALUC to review an individual project, such as the Solano 4 Wind Project, are not met in this case. Further, while an agency can agree to have an ALUC review individual projects, such review is advisory only. (Pub. Resources Code § 21676.5(b); California Airport Land Use Planning Handbook (2002), p. 4-9.) As such, the Solano 4 Wind Project is not subject to ALUC consistency determination under the SAA provisions. Further, even where an ALUC's review capacity is more than advisory, a local agency can overrule the ALUC's consistency determination. (See Pub. Resources Code § 21675.1(d).)

4. Even if the LUCP applied to the project, which it does not, SMUD can overrule the ALUC's determination.

Assuming for the sake of argument that the State Aeronautics Act's requirement for obtaining a consistency determination encompasses SMUD's Solano 4 Wind Project, SMUD can overrule the ALUC by holding a hearing, making findings that the action is consistent with the purposes of the SAA, and obtaining a two-thirds vote of its governing body. (See Pub. Util. Code, § 21674.7(b) ["This subdivision does not limit the authority of local agencies to overrule [the ALUC] actions or recommendations pursuant to Sections 21676, 21676.5, or 21677."].)

Broadly stated, the intent of the SAA is to minimize the risk to public health, safety, and welfare from exposure to excessive noise and safety hazards (i.e., aircraft accidents) and to ensure the orderly development and expansion of airports and surrounding areas. (Pub. Util. Code, § 21670(a); see also *Suisun Alliance*, 2010 WL 3280273 at 4-5.) Therefore, even if the ALUC provisions were to apply to the project, SMUD has the authority under Sections 21676 and 21676.5 to overrule the ALUC's consistency determination upon making the requisite findings, similar to any other local agency such as a city or county.

As stated above, and without expressly limiting the provisions to cities or counties, the SAA does not limit "the authority of local agencies" to overrule an ALUC's actions or recommendations, and certainly does not limit that discretion to only local agencies with land use authority. (See Pub. Util. Code, § 21674.7(b).) Further, by using the term "local agency" in Sections 21676 and 21676.5 of the Public Utilities Code, and conversely and expressly using the term "city or county" in Section 21675.1(d) with respect to parallel provisions regarding overruling an ALUC's determination, the legislature clearly intended that "local agencies" such as SMUD similarly have discretion to overrule the ALUC under Sections 21676 and 21676.5. (See Pub. Utilities Code, §§ 21674.7(b), 216751(d), 21676, 21676.5, and 21677 [allowing local agencies in Marin County to overrule an ALUC determination by a simple majority].) In fact, Solano County staff already conceded that "SMUD is a regulated entity by the ALUC and is similarly situated as any city or the County." (Solano County ALUC Agenda Submittal for ALUC-17-10: SMUD Plan Amendment Request [File No. AC 17-035], October 12, 2017; see also *Suisun Alliance v. Suisun City* (2010) Solano Co. Sup. Ct. Case No. A125042, 2010 WL 3280273, at 4-5.) The Legislature clarified its intent that a local agency such as a special district has the ability to overrule the ALUC determination, as long as the local agency follows the proper procedure set forth in the SAA. (See Assembly Bill Analysis for AB 332 [May 2003], at p. 3.)

As discussed above, prior to the preparation of the DEIR, SMUD commissioned a supplemental individual obstruction evaluation and airspace analysis (Capitol Airspace Group 2018a) to identify obstacle clearance surfaces established by the Federal Aviation Administration (FAA), and a supplemental radar cumulative impact study with design elements to avoid or minimize potential safety impacts (Westslope 2018a). The Capitol Airspace Group supplemental study performed a series of analyses that are similar to the FAA aeronautical analysis and process. The supplemental study was commissioned to provide SMUD with a reasonable expectation of the likely outcome of the FAA review process. The supplemental radar cumulative impact modeling study determined there would be a negligible impact over baseline to the associated Travis AFB radar systems resulting from installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a).

Both supplemental studies are included in Appendix A of this FEIR. Pursuant to applications filed by SMUD, the FAA issued DNHs for each of the proposed turbines for the project; the FAA also confirmed that the DNHs encompass not only the Visual Flight Rules (VFR) routes but also potential impacts on radar. As stated above, the ALUC did not file a petition challenging the Determinations. Thus, were SMUD to apply for a consistency determination by the ALUC and receive a determination of inconsistency, SMUD's decision on whether to overrule the ALUC could be based on its own commissioned findings as well as the bases identified by the FAA. (*California Aviation Council v. City of Ceres* (1992) 9 Ca1.App.4th 1384, 1393 [a court's review of a local agency's findings in support of its decision to overrule the ALUC is for substantial evidence].)

Additionally, even if SMUD were required to follow certain procedures in the State Aeronautics Act (SAA) or the Solano County Airport Land Use Commission's Travis Air Force Base Land Use Compatibility Plan (LUCP), a possible inconsistency with those procedures or standards does not automatically equate to a significant adverse change in the physical environment under CEQA. Courts have emphasized that "an inconsistency between a project and other land use controls *does not in itself* mandate a finding of significance. It is merely a factor to be considered in determining whether" a project may cause a significant impact. (*Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1207 [emphasis added]; *California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2016) 2 Cal.App.5th 1067, 1087 [a project's inconsistency with a general plan does not mandate finding of significant effect on the environment]; *Saltonstall v. City of Sacramento* (2015) 234 Cal.App.4th 549, 585 [potential impacts to public safety by event crowds not itself a significant environmental impact under CEQA].) Here, the project is inconsistent with the LUCP's blanket provision limiting to 100 feet the height of any wind turbine within a line-of-sight of the Travis Air Force Base (AFB) Digital Airport Surveillance Radar (DASR) Radar Installation. According to the LUCP itself, the height limit for wind turbines is designed to address radar interference, as well as vertical obstruction hazards. Whatever the purpose, the EIR evaluated possible radar interference and obstruction hazard concerns with regards to local airport uses and found that this project would not result in any significant interference or other safety hazard. Further, the FAA—the Federal agency entrusted with air traffic-related safety concerns—confirmed that this project would result in no

hazard to regional air traffic. Thus, again, despite any procedural inconsistencies or disagreements among agencies, the physical impact of this project has been addressed.

Please also refer to Response to Comment Letters 4-1 and 5-1a, which addresses specific comments related to these issues. Please also see the April 2019 NOP response letter from Downey Brand (Appendix C).

PROJECT BACKGROUND AND HISTORY

Many options were available to SMUD with regards to how the Solano 4 Wind Project could be developed. SMUD contracted with Geoff Blackman of Westslope Consulting, a radar system specialist, to model the expected impact on the radar systems associated with the project area. The first configuration evaluated adding turbines in 2016 to the undeveloped property to the west of the SMUD project area. This would have resulted in the addition of approximately 16 turbines and an impact on the associated radar systems. To mitigate for a potential increase over baseline radar interference by local wind turbines, an option was developed that included the removal of the existing Solano Phase 1 project (23 Vestas 47m rotor diameter turbines on 50m and 65m towers).

SMUD conducted a survey of commercially available turbines. Using these turbines, preliminary site plans were developed including turbine counts that ranged from 19 to 25 turbines (Black and Veatch 2018; see Appendix A of this FEIR). SMUD staff then researched the turbines expected to be commercially available at the expected date of the proposed project's construction and attended the American Wind Energy Association Siting and Environmental Compliance conference to understand what was currently being permitted. From these efforts, SMUD discovered that the majority of turbine manufactures were developing larger, taller turbines. SMUD then updated the conceptual project layout configuration using revised turbine data. The final configuration considered reduced the project turbine count to a preferred 19, per the project CAISO Large Generator Interconnection Application (LGIA), with a maximum of 22 turbines. It also includes the removal of the existing 23 Solano Phase 1 turbines. The supplemental radar cumulative impact modeling study determined there would be a negligible impact over baseline to the associated Travis AFB radar systems resulting from installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a).

The United States Congress charged the Federal Aviation Administration (FAA) with the responsibility to encourage air commerce in the United States. As part of this responsibility, the FAA is tasked with ensuring air safety and preserving the National Airspace System (NAS). It is through these mandates that the FAA draws its authority to conduct aeronautical studies of tall structures, including wind turbines (Aeronautical Study Process, Capitol Airspace Group 2018b).

There are eight offices internal to the FAA. In addition, the Department of Defense (DOD), Army, Navy, Air Force and the Department of Homeland Security (DHS) take part in the aeronautical study process. The DOD formal review process occurs concurrently with FAA's aeronautical study. Technicians in each office review each proposed tall structure location to ensure that the structure does not interfere with their areas of responsibility. Once all offices have responded, the airspace specialist, typically a former air traffic controller, assesses all of the responses and subsequently determines whether the planned structure exceeds the imaginary surfaces established under 14 CFR Part 77, Sections 77.17, 77.19 and 77.21. Structures that do not exceed these surfaces are, in most cases, issued favorable Determinations of No Hazard (DNH). Structures that exceed these surfaces are generally issued a Notice of Presumed Hazard (NPH). An NPH letter is meant to be a means for the FAA to notify the developer that the FAA has identified an issue that will require further study to determine whether or not the structure will pose a hazard to air navigation. Typically, the FAA also includes in the letter any objections received by the various responding offices in the FAA, DOD and DHS. If a military objection is raised, due to potential for impact on radar surveillance systems for example, a Mitigation Response Team (MRT) may be formed. This team would include representatives from the potentially affected air force base. The MRT conducts detailed analyses and negotiates mitigation options with the structure developer. If mitigation options are identified and agreed upon, the Mitigation Oversight Committee will review the solutions (Aeronautical Study Process, Capitol Airspace Group 2018b).

It is through the public comment period that the FAA collects information regarding the actual impact of the structure on local flights. Once the comment period closes, the FAA will collect all comments, discard those that are not of valid aeronautical nature, and proceed to make a final decision. The FAA then issues a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact. The FAA also issues a DNH when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation. A DNH will also be issued when the aeronautical study concludes that the proposed construction or alteration

will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation, and it may include the following: conditional provisions of a determination, limitations necessary to minimize potential problems, such as the use of temporary construction equipment, supplemental notice requirements, when required, and marking and lighting recommendations, as appropriate (Aeronautical Study Process, Capitol Airspace Group 2018b).

On February 8, 2018, SMUD started meeting with Travis Air Force Base (AFB) to discuss the Solano 4 Wind Project and associated environmental review and project planning processes, project schedule, and studies to be prepared (radar impact study and an obstruction evaluation and airspace analysis). SMUD also met with Solano County on February 28th, 2018 to share the same information. Since the February 8, 2018 meeting with Travis AFB, SMUD met with Travis AFB on five separate occasions to discuss the project, including the radar impact study and obstruction evaluation and airspace analysis. SMUD filed applications with the FAA on October 10, 2018 and on February 2, 2019 received DNHs for nineteen (19) Solano 4 turbines with conditions related to marking and lighting. The determinations were subject to third party petitions received by March 3, 2019. While an attorney filed a letter on behalf of the County/ALUC, the FAA determined that the letter was not an objection, but constituted a series of statements. The third-party submittal period ended, and the determinations became final on March 13, 2019. SMUD notified Travis AFB on April 14, 2020 that SMUD had started the process with the FAA to request extensions for the nineteen (19) DNHs received for the Solano 4 Wind Project. On September 28, 2020 SMUD met with Colonel Simmons of Travis AFB to discuss the project. Key take-away messages from this meeting included Colonel Simmons' request that SMUD continue working with the County as part of the FAA DNH extension process. It was also stated that Travis AFB would participate in the FAA process, would conduct independent studies, and that Travis AFB would like to understand the cumulative effect of future repowering/development at the Solano Wind project site. As Travis AFB worked through its own technical evaluation, SMUD scheduled bi-weekly meetings with Travis AFB to provide support and receive updates. These meetings continued until Travis AFB concluded its study. The DNH extension process resulted in the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the DOD Military Aviation and Installation Assurance Siting Clearinghouse (the "DOD Siting Clearinghouse") mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations (Military Aviation and Installation Assurance Siting Clearinghouse, accessed 2021). The result of the MRT review was a conclusion by the 60th Air Mobility Wing of "[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations" and a conclusion by the DOD Siting

Clearinghouse that Solano 4 “will not present an adverse impact to military operations.” (Simmons, 2021; Sample, 2021). SMUD received extensions for the 19 DNHs for Solano 4 Wind Project on January 28, 2021, as requested. (See FAA Determinations and letter from Steven J. Sample in Appendix B of the FEIR.)

With the FAA’s confirmation of a safe project configuration, SMUD is now moving forward in its efforts to develop the project using this proposed configuration.

Please also see the results of the supplemental cumulative impact studies conducted by Westslope Consulting (2018a) and Capitol Airspace (2018a). As discussed above, prior to the preparation of the DEIR, these supplemental studies were prepared to assist with planning efforts and facilitate coordination with Travis AFB and inform SMUD of the FAA process. These supplemental studies are discussed in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson included in the FEIR. SMUD believes that the analysis conducted to date and provided in this FEIR is thorough and adequate.

While additional information has been provided in this FEIR and its appendices, that information merely amplifies and clarifies the evidence and findings in the DEIR. Therefore, no recirculation would be required under Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5(a). (CEQA Guidelines, § 15088.5(a)-(b); *San Francisco Baykeeper, Inc. v. Cal. State Lands Com.* (2015) 242 Cal.App.4th 202, 224–225.)

SAFETY CONCERNS RELATED TO PROJECT SITING

Safety is a core value at SMUD, and staff developed the Solano 4 Wind Project by following the SMUD North Star priority area for safety: “Be safe. Always.”

Chapter 3.7 ‘Hazards and Hazardous Materials’ of the DEIR, Impact 3.7-3 analyzes the safety hazard to air traffic and notes that the FAA and its regulations concerning air safety and aviation navigation preempt the ALUC’s land use regulations regarding radar system interference. The FAA conducted an independent evaluation of the Solano 4 Wind Project and determined there would be no significant hazard to air traffic control operations. As discussed in detail above under “Land Use,” Determinations of No Hazard were issued for the 19 Solano 4 Wind turbines on February 1, 2019, and extensions were issued on January 28, 2021 (see Appendix B FAA Determinations of FEIR). The DEIR also includes Mitigation Measure 3.7-3 that requires all wind turbine generators (WTGs) be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on.

Although SMUD, as a local agency, is not required to obtain ALUC approval for the development of its electrical generation facilities such as the project, SMUD chose to participate in County and ALUC efforts to develop criteria for the 2015 LUCP update. SMUD met repeatedly with the County, the ALUC and Travis AFB to support development of a policy that would allow for wind development while incorporating appropriate measures or design elements to avoid or minimize potential impacts to radar and aerial navigation. In addition to presenting findings on radar modeling and turbines, SMUD submitted a comment letter to the ALUC urging any plan to allow for discretionary approval of turbines (of heights above 200') upon a demonstration that the project would not interfere with radar or base operations and allow for repowering of existing wind turbine sites, rather than using an inflexible line-of-sight standard in place of actual analysis. In 2015, the ALUC ultimately adopted a LUCP relying exclusively on line-of-sight for turbines without technical evidence to justify the expansion of land use compatibility zones; but the staff report indicates the line-of-site criteria was intended to eliminate inconsistencies with the Travis AFB LUCP and other policy documents, to eliminate ambiguity and uncertainty on how the LUCP should apply to various properties, and to clarify the extent of the ALUC's jurisdiction. Later, SMUD participated in a working group to explore alternatives to the line-of-sight analysis for replacement of existing facilities or repowering of existing wind farms within the Solano Wind Resource Area. In March 2016, a group was established to address these items, which included SMUD, but the ALUC dissolved the group unceremoniously.

Nonetheless, SMUD hired Westslope Consulting, LLS to conduct a supplemental cumulative study for the Solano 4 Wind Project (Westslope 2018a) and to provide a technical analysis of the project's potential impacts on radar and aeronautical navigation. This supplemental study, the SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts dated September 6, 2018, is included in Appendix A of this FEIR. This supplemental radar cumulative impact modeling study determined there would be a negligible impact over baseline to the associated Travis AFB radar systems resulting from installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a).

SOLANO WIND RESOURCE AREA (FORMERLY MHWRA)

The *Solano County Wind Turbine Siting Plan and Environmental Impact Report* (Siting Plan) (Solano County 1987) designated the MHWRA as suitable for wind energy

development, based on wind monitoring and assessment studies prepared in the late 1970s and 1980s by the California Energy Commission, Pacific Gas and Electric Company (PG&E), and the U.S. Bureau of Reclamation. With adoption of the *Solano County General Plan* in 2008, the Siting Plan is no longer in effect and the 2008 *Solano County General Plan* describes wind resources areas of the County as located in the Collinsville–Montezuma Hills south of SR 12. The County defers to the California Energy Commission (CEC) to define areas suitable for commercial wind energy. The CEC's map of operational wind projects in the Solano Wind Resource Area (CEC 2018) describes the project site and surrounding area as having high sustainable winds suitable for wind energy. For this reason, and the site-specific information noted above, SMUD chose the proposed project site. SMUD has ascertained that the DEIR has been sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated.



State of California – Natural Resources Agency
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Bay Delta Region
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

**Letter 1**

August 30, 2019

Mr. Ammon Rice
Sacramento Municipal Utility District
6201 S Street, MS H201
Sacramento, CA 95817

Subject: Solano 4 Wind Project, Draft Environmental Impact Report, SCH #2019012016,
Solano County

Dear Mr. Rice:

The California Department of Fish and Wildlife (CDFW) received a draft Environmental Impact Report (EIR) from Sacramento Municipal Utility District (SMUD) for the Solano 4 Wind Project (Project) pursuant to the California Environmental Quality Act (CEQA).

CDFW is submitting comments on the draft EIR to inform SMUD, as the Lead Agency, of our concerns regarding potentially significant impacts to sensitive resources associated with the proposed Project. CDFW is providing these comments and recommendations regarding those activities involved in the Project that are within CDFW's area of expertise and relevant to its statutory responsibilities (Fish and Game Code, § 1802), and/or which are required to be approved by CDFW (CEQA Guidelines, §§ 15086, 15096 and 15204).

CDFW ROLE

CDFW is a Trustee Agency with responsibility under CEQA (Pub. Resources Code, § 21000 et seq.) pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as a California Endangered Species Act (CESA) permit, a Lake and Streambed Alteration (LSA) Agreement, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

REGULATORY REQUIREMENTSCalifornia Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species. (Pub. Resources Code,

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Conserving California's Wildlife Since 1870

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§§ 21001, subd. (c), 21083; CEQA Guidelines, §§ 15380, 15064, and 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code section 2080.

Lake and Streambed Alteration

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. CDFW will consider the CEQA document for the Project and may issue an LSA Agreement. CDFW may not execute the final LSA Agreement (or ITP) until it has complied with CEQA as a Responsible Agency.

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PROJECT DESCRIPTION SUMMARY

Proponent: Sacramento Municipal Utility District

Description and Location: The Project site is located within the Solano County Wind Resource Area (WRA) in southern Solano County. The WRA lies north of the confluence of the Sacramento and San Joaquin rivers and southwest of the City of Rio Vista. The Project would involve the decommissioning of 59 existing wind turbine generators (WTGs) and the construction and operation of up to 22 new WTGs. Associated access roads and collection lines would be installed to support the new WTGs.

COMMENTS AND RECOMMENDATIONS

CDFW offers the below comments and recommendations to assist SMUD in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

California Tiger Salamander (*Ambystoma californiense*)

The Project site is located within the range of California tiger salamander (CTS; *Ambystoma californiense*) and is located near known and potential breeding habitat for CTS. CTS is both federally listed and state listed as threatened. The draft EIR acknowledges potential for take of CTS, and identifies impacts to the species as potentially significant; however, Mitigation Measure 3.3-1a fails to reduce impacts to less-than-significant. Any action that could cause take of CTS, such as ground disturbance during construction or land management activities (e.g. disking), must be authorized under appropriate federal and state permits.

1-2

Due to the potential presence of this listed species and the potential for Project-related take, including relocation out of harm's way, CDFW advises that the Project proponent obtain a CESA Permit (pursuant to Fish and Game Code Section 2080 et seq.) in advance of Project

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implementation. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document should specify impacts, mitigation measures, and fully describe a mitigation, monitoring and reporting program. If the proposed Project will impact any CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. More information on the CESA permitting process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>.

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CDFW recommends that SMUD, as the Lead Agency, require the Project proponent to apply for an ITP for CTS as a condition of Project approval.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is state listed as threatened. Impact 3.3-3 indicates permanent impacts to foraging habitat for numerous non-raptor avian species, including tricolored blackbird; however, no mitigation measures are proposed to offset these impacts. Please note that the permanent loss of habitat is considered significant in and of itself, and should be mitigated regardless of current level of disturbance or reconnaissance survey results. Additionally, the EIR acknowledges that operation of WTGs could result in take of special-status birds and identifies impacts to special-status birds (including tricolored blackbird) as potentially significant, but fails to reduce impacts to less-than-significant. Any action that could cause take of tricolored blackbird, including ongoing operation of WTGs, must be authorized under appropriate federal and state permits.

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Due to the known presence of this listed species and the potential for Project-related take, CDFW advises that the Project proponent obtain a CESA Permit (pursuant to Fish and Game Code Section 2080 et seq.) in advance of Project implementation. Issuance of a CESA permit is subject to CEQA documentation; therefore, the CEQA document should specify impacts, mitigation measures, and fully describe a mitigation, monitoring and reporting program. If the proposed Project will impact any CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA permit. More information on the CESA permitting process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>.

CDFW recommends that SMUD, as the Lead Agency, require the Project proponent to apply for an ITP for tricolored blackbird as a condition of Project approval.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is state listed as threatened and known to nest near and forage on the Project site. The draft EIR identifies potentially significant impacts to Swainson's hawk during Project construction and operation, including anticipated take during WTG operation. Due to the known presence of this listed species and the anticipated take, CDFW advises that the Project proponent obtain a CESA Permit (pursuant to Fish and Game Code Section 2080 et seq.) in advance of Project implementation. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document should specify impacts, mitigation measures, and fully describe a mitigation, monitoring and reporting program. If the proposed Project will

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impact any CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. More information on the CESA permitting process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>. CDFW recommends that the District, as the Lead Agency, require the Project proponent to apply for an ITP for Swainson's hawk as a condition of Project approval.

To further reduce Project impacts, CDFW provides the following recommendations:

- 1) Revise Mitigation Measure 3.3-4a to require a qualified biologist to conduct pre-construction surveys prior to any construction activities that may impact Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's (TAC) *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (2000), available on CDFW's webpage at <https://www.wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds>. Survey methods should be closely followed by starting early in the nesting season (late March to early April) to maximize the likelihood of detecting an active nest (nests, adults, and chicks are more difficult to detect later in the growing season because trees become less transparent as vegetation increases). Surveys should be conducted: (1) within a minimum 0.25-mile radius of the Project area or a larger area if necessary to identify potentially impacted active nests, and (2) for at least the two survey periods immediately prior to initiating Project-related construction activities. Surveys should occur annually for the duration of the Project. The qualified biologist should have a minimum of two years of experience implementing the TAC survey methodology. If an active nest is identified, a 0.25-mile buffer shall be maintained around the nest until the young fledge. If Swainson's hawk activity (foraging or courtship, not just nests) is noted within 0.25 miles of the Project site and a non-disturbance buffer of 0.25 miles cannot be implemented, the Project proponent should be required to obtain a CESA ITP and pursue further compensatory mitigation as a condition of Project approval.
- 2) Revise Mitigation Measure 3.3-5 to require consultation with CDFW to determine ratios for off-site compensatory mitigation. The off-site mitigation ratio of 0.75:1 (mitigation: loss) currently proposed in Mitigation Measure 3.3-5 results in a net loss of foraging habitat and may be insufficient to mitigate impacts to less-than-significant. Mitigation lands should be protected in perpetuity under a conservation easement and be managed in perpetuity through an endowment with an appointed land manager. The easement should be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Government Code sections 65965-65968, as amended. As the state's trustee for fish and wildlife resources, CDFW should be named as a third-party beneficiary under the conservation easement.

Western Burrowing Owl (*Athene cunicularia*)

Western burrowing owl is designated as a California Bird Species of Special Concern. The draft EIR states that burrowing owls are known to be present within and adjacent to the Project area.

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Mitigation Measure 3.3-4b proposes passive relocation to mitigate impacts to occupied burrows within the Project site during the non-breeding season. Please be advised that CDFW does not consider exclusion of burrowing owls or "passive relocation" in and of itself sufficient to reduce the permanent loss of habitat to a level of less-than-significant. The long-term demographic consequences of exclusion techniques have not been thoroughly evaluated, and the survival rate of evicted or excluded owls is unknown. All possible avoidance and minimization measures should be considered before temporary or permanent exclusion and closure of burrows is implemented in order to avoid "take".

The CEQA document for the Project should also include measures to avoid or minimize loss of burrowing owl foraging habitat, and mitigation for loss of habitat that cannot be fully avoided. Please note that the permanent loss of habitat is considered significant in and of itself, and should be mitigated regardless of current level of disturbance or reconnaissance survey results. To offset this significant permanent impact, the Project proponent should be required to purchase and protect in perpetuity compensatory mitigation lands at a minimum of a 1:1 mitigation ratio (or a minimum mitigation ratio of 3:1 if active burrows or winter roosts are identified on site and take cannot be avoided) as a condition of Project approval. If active burrows or winter roosts are found onsite and take cannot be avoided, the mitigation ratio should be increased to a minimum of 3:1 (mitigation: loss).

Raptor Foraging Habitat

Reclamation of roads is briefly discussed in association with Impact 3.3-5: Removal and modification of raptor nesting, foraging, and roosting habitat during construction. The acreage of reclaimed roads is subsequently deducted from the total acreage of permanent impacts to foraging habitat. The habitat structure and value of the reclaimed acreage is not described nor mapped within the draft EIR and may not be suitable for mitigation land. Furthermore, counting reclaimed land as foraging land conflicts with Mitigation Measure 3.3-9a: Avoid and minimize operational impacts on birds and bats, which calls for maintaining a landscape within the Project area that "does not encourage bird or bat occurrence" and implementing a prey management program to reduce prey that could attract eagles and other raptors. As such, the reclaimed acreage should not be considered as mitigation habitat nor should it be deducted from cumulative Project impacts, without consultation with and concurrence of CDFW and U.S. Fish and Wildlife Service (USFWS).

Injury to and Mortality of Raptors, Other Birds, and Bats from Project Operation

Impact 3.3-9 estimates the mortality of 312 to 641 individual birds and 169 to 356 bats per year of operation as potentially significant; however, it is unclear if or how mitigation measures proposed will sufficiently reduce these impacts. Please expand the proposed mitigation measures to include quantifiable and enforceable success criteria.

Mitigation Measure 3.3-9b prescribes one year of post-construction mortality monitoring consisting of a single survey at all turbines. A single survey is insufficient to determine mortality trends and to validate pre-construction mortality estimates. CDFW recommends conducting annual mortality monitoring for a minimum of five years post-construction, followed by periodic monitoring every three years for the life WTG operation, as biological and operational conditions

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may change. Survey methodology should be developed in consultation with CDFW and USFWS, and should be incorporated into the EIR in detail, including specific, quantifiable triggers for initiating implementation of Mitigation Measure 3.3-9h. All mortalities within the Project site should be reported to CDFW and USFWS immediately upon discovery.

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1-7
Cont'd

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs., tit. 14, § 753.5; Fish and Game Code, § 711.4; Pub. Resources Code, § 21089).

1-8

CONCLUSION

To ensure significant impacts are adequately mitigated to a level less-than-significant, the feasible mitigation measures described above should be incorporated as enforceable conditions into the final CEQA document for the Project. CDFW appreciates the opportunity to comment on the draft EIR to assist SMUD in identifying and mitigating Project impacts on biological resources.

1-9

Questions regarding this letter or further coordination should be directed to Ms. Jennifer Rippert, Environmental Scientist, at (707) 428-2069 or Jennifer.Rippert@wildlife.ca.gov; or Ms. Melissa Farinha, Senior Environmental Scientist (Supervisory), at (707) 944-5579.

Sincerely,


Gregg Erickson
Regional Manager
Bay Delta Region

cc: State Clearinghouse

**Letter
1-1
Response****Gregg Erickson, Regional Manager, Bay Delta Region
California Department of Fish and Wildlife
August 30, 2019**

- L1-1** *CDFW Role and Project Description.* *The commenter describes the responsibilities of the California Department of Fish and Wildlife (CDFW) as a Trustee Agency, discusses CDFW's relevant regulatory requirements, and provides a description of the Solano 4 Wind Project.*

The commenter has provided introductory information describing the role of CDFW and its statutory requirements. These comments are not directed at the adequacy of the DEIR, nor do they contain an argument raising significant environmental issues. The comments are noted and no further response is required.

- L1-2** *California Tiger Salamander.* *The commenter notes that the project site is within the range of the State and federally listed California tiger salamander (CTS) and states that the project could result in take of CTS. The commenter expresses the opinion that Mitigation Measure 3.3-1a would fail to reduce the impact of the project on CTS to less than significant and recommends that SMUD obtain an Incidental Take Permit for CTS, pursuant to the California Endangered Species Act.*

As described on pages 3.3-89 through 3.3-90 of the DEIR and in CTS habitat assessments and surveys conducted in and near the project site (AECOM 2018b; Rana Resources 2010; AWE 2017d), CTS are considered highly unlikely to occur on the project site. This conclusion is based on the results of surveys and the disturbed nature of the uplands throughout the project site, which have been subject to land use practices involving ground disturbance for many decades. These uplands feature limited upland refugia, regular disruptions and barriers to dispersal, and habitat fragmentation. Furthermore, all aquatic features in or near the project site are 2.27 miles or more from the nearest known CTS occurrence and are 3.57 miles or more from the nearest known breeding occurrence of this species. And, as mentioned in the DEIR, 1.24 miles is the observed mobility of CTS.

These CTS survey results were provided to CDFW and the U.S. Fish and Wildlife Service (USFWS) before release of the DEIR. In addition, SMUD hosted a tour of the project site so that resource USFWS and CDFW staff could make their own assessments of CTS habitat conditions. SMUD also met with USFWS staff to discuss the results of the CTS surveys. At that meeting, the USFWS staff concurred with the conclusion of the survey reports that CTS were highly unlikely to be present at the site, but they nevertheless requested that a monitor be present during project activities that may affect a wandering CTS. In an abundance of caution and to be responsive to USFWS's request, a requirement for the presence of a biological monitor was included in the

mitigation measure. As presented in the DEIR, implementation of Mitigation Measures 3.3-1a and 3.3-1b will avoid or reduce potential construction impacts on this species. Additional language has been added to Mitigation Measures 3.3-1a. New text is indicated by double underlining. These mitigation measures will require avoiding and minimizing effects on aquatic resources during construction, conducting biological monitoring, and providing environmental awareness training to construction workers. Further, Mitigation Measures 3.3-13(a) through (d) have been incorporated to protect water quality and drainages during construction, which would avoid impacts to potential aquatic habitat of CTS on-site during construction.

With implementation of these mitigation measures, SMUD determined that the project would have no adverse effects on CTS. Further, no “take” of CTS is expected to occur, and thus an incidental take permit would not be required.¹ SMUD appreciates the continued involvement and input from CDFW staff.

Mitigation Measure 3.3-1a: Avoid and minimize impacts on California tiger salamander. SMUD will implement the following measures to avoid and minimize potential construction impacts on California tiger salamander:

- A qualified California tiger salamander biologist (defined as an individual with 3 years of experience conducting surveys for California tiger salamander and habitat in the project region) will be present on-site to conduct monitoring during project construction and decommissioning activities that disturb surface soils within 250 feet of drainages or any other aquatic features identified as suitable for California tiger salamander (AECOM 2018b).
- ~~To the extent possible~~, SMUD will confine all project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander (AECOM 2018b). To the extent it is not possible to limit such activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander, the qualified biologist will perform a preconstruction survey within 48 hours before constructing project-related parking, storage areas, laydown sites, and equipment storage sites to ensure California tiger salamander are not present. If a California tiger salamander is found within the project area, SMUD will implement any actions necessary to avoid take of California tiger salamander including establishing appropriate buffer area and exclusion fencing in

¹ “Take” under California law is defined more narrowly to mean to: “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” (Fish & Game Code, § 86; *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018, 1040 (proscribed taking under California law requires “mortality,” and “not the taking of habitat alone”).)

consultation with USFWS and/or CDFW. If after avoidance measure cannot avoid take, SMUD shall seek an Incidental Take Permit from USFWS and/or CDFW, as appropriate, and implement any measures specified therein to reduce chances of take and minimize and fully mitigate any incidental take (including the measures in this MM 3.3-1a).

- All steep-walled holes or trenches that are 1 foot deep or greater and located within 250 feet of aquatic habitat that is suitable for CTS will have at least one escape ramp constructed of earthen fill or wooden planks. All such holes or trenches will be completely covered before sunset of each workday using boards or metal plates that are placed flush to the ground, and will be inspected before the start of daily construction activities.
- To prevent inadvertent entrapment of California tiger salamanders during project construction, maintenance, and decommissioning, all construction pipes, culverts, conduits, and other similar structures stored on-site overnight will be inspected before the structure is buried. Plastic monofilament netting will not be used for sediment control because it could pose an entrapment hazard to California tiger salamanders and other wildlife.

L1-3 Tricolored Blackbird. The commenter states that tricolored blackbird, a State-listed threatened species, would experience loss of foraging habitat because of project construction and notes that take of tricolored blackbird from operation of the wind turbine generators (WTGs) would need to be authorized under appropriate State and federal permits. The commenter further states that the DEIR does not provide mitigation measures that would reduce the impacts on tricolored blackbird and other special-status bird species to less than significant and recommends that SMUD obtain an Incidental Take Permit for tricolored blackbird.

As discussed on page 3.3-71 of the DEIR, tricolored blackbirds have been observed in the Solano County Wind Resource Area (WRA) during the nonbreeding season, typically in mixed flocks with other blackbird species (Estep Environmental Consulting 2018b). The only potentially suitable nesting habitat in the project area is the brackish marsh along the bank of the Sacramento River. No tricolored blackbird nesting colonies have been observed at this site, and this marsh would not be directly or indirectly affected by project construction or operation. No suitable breeding habitat for tricolored blackbird occurs on the Solano 4 Wind project sites.

As discussed on page 3.3-95 of the DEIR, the project would not directly affect freshwater marsh or riparian habitat, and the project's net permanent impact on vegetation communities would be only 43.82 acres for the 136m WTG option or 39.56 acres for the 150m WTG option. As discussed on under Foraging

Habitat starting on page 3.3-100 of the DEIR, the permanent loss of grassland foraging habitat resulting from the project would be small relative to the abundant grasslands in the project area, comprising less than 0.02 percent of the 2261 acres of grassland within the 2,549-acre project site. Furthermore, grasslands are the dominant habitat type throughout the WRA, an area of approximately 40,000 acres. Therefore, loss of foraging habitat for tricolored blackbird and other bird species would be less than significant because ample foraging habitat is available in the project area and in the WRA, and no mitigation is required.

The DEIR states on page 3.3-8 that tricolored blackbird fatalities could occur as a result of WTG collisions. Although a fatality is theoretically possible, no tricolored blackbird fatalities have been recorded in the WRA in more than 10 years of monitoring at eight wind farms (see Table 3.3-11 in the DEIR). SMUD has been coordinating with CDFW before and after publication of the DEIR and will continue to work with CDFW to determine whether an Incidental Take Permit for tricolored blackbird may be warranted for the project given the extremely low likelihood of impact.

L1-4 Swainson's Hawk. The commenter states that Swainson's hawk, a State-listed threatened species, is known to nest near and forage on the project site and recommends that SMUD secure an Incidental Take Permit for this species. The commenter further recommends revisions to Mitigation Measures 3.3-4a, to require a qualified biologist to conduct preconstruction surveys before any project construction activities that may affect Swainson's hawk, as described in the Swainson's Hawk Technical Advisory Committee's (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California 's Central Valley (CDFG 2000). The commenter further recommends revisions to Mitigation Measure 3.3-5, to require consultation with CDFW to determine ratios for off-site compensatory mitigation, noting that the proposed off-site mitigation ratio of 0.75:1 (mitigation: loss) in the DEIR may be insufficient to mitigate impacts to a less-than-significant level. The commenter requests that these mitigation lands be protected in perpetuity under a conservation easement and be managed in perpetuity through an endowment with an appointed land manager, and that the easement be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity, to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Sections 65965–65968 of the Government Code, as amended. As the State's trustee for fish and wildlife resources, CDFW should be named as a third-party beneficiary under the conservation easement.

The following revisions have been made to Mitigation Measure 3.3-4a, to reflect the commenter's recommendations that preconstruction surveys be conducted for Swainson's hawks in accordance with Swainson's Hawk Technical Advisory Committee guidance. New text is indicated by double underlining.

Mitigation Measure 3.3-4a: Avoid and minimize impacts on nesting raptors.

SMUD will implement the following measures to avoid and minimize impacts on nesting raptors:

- ▲ If construction activities are scheduled to occur during the breeding season (February 1–August 31), SMUD will conduct preconstruction surveys in all potential suitable raptor nesting habitat within 0.25 mile of proposed construction areas, including trees, shrubs, grasslands, and wetland vegetation. A qualified wildlife biologist shall determine the timing of preconstruction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 30 days before construction. The 30-day survey period allows flexibility in order for surveys to be conducted when the likelihood of nest detection is maximized (e.g., during courtship, nest building, or when feeding young).
- ▲ SMUD will conduct nesting surveys for Swainson's hawks in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) guidance published in 2000 (Recommended Timing and Methodology for Swainsons' Hawk Nesting Surveys in California's Central Valley). These methods will require surveys to start early in the nesting season (late March to early April). Surveys will be conducted within a minimum 0.25-mile radius of the project area or a larger area if necessary to identify potentially active nests potentially affected by project construction. As required by the TAC guidance, surveys will be conducted for at least two survey periods in the nesting season, immediately before the start of project construction activities. The qualified biologist conducting the surveys will have a minimum of 2 years of experience in implementing the TAC survey methodology.
- ▲ SMUD will maintain no-disturbance buffers around active raptor nests during the breeding season, or until it is determined the young have fledged. The no-disturbance zone shall include a 500-foot buffer around all raptor nests (including owls) and a 0.25-mile buffer for any active Swainson's hawk nests.
 - No-disturbance buffer sizes for non-special-status species raptors may be increased or decreased by a qualified biologist based on the sensitivity of the species of raptor, or based on site conditions that affect disturbance, such as the type of work, vegetation structure or density, and the line of sight between construction work and the nest to nesting raptors.

- No-disturbance buffer sizes for special-status raptor species may be increased or decreased by the qualified biologist in consultation with USFWS and CDFW as appropriate
- Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (e.g., county roads, highways, farm roads).
- If no nests are observed during the preconstruction survey but nesting occurs after the start of construction, it will be assumed that the individuals are acclimated to the level of ongoing disturbance.
- ▲ SMUD will clearly identify the locations of no-disturbance buffers (e.g., 250 feet, 500 feet, or 0.25 mile) on maps that will be made available to construction crews.
- ▲ Before and during construction, a qualified biologist shall identify all active nest setback areas on construction drawings, and if appropriate, shall flag or fence the setback areas.
- ▲ If construction is scheduled to occur during the non-nesting season, then no nesting bird surveys are required before construction activity begins, except provisions for surveys for burrowing owls outside the nesting season (September 1–January 31), as specified below in Mitigation Measure 3.3-4b.

The following revisions have been made to Mitigation Measure 3.3-5, to reflect the commenter's suggestions for additional text to clarify the requirements for the proposed Swainson's hawks foraging habitat mitigation lands.

Mitigation Measure 3.3-5: Acquire off-site mitigation to replace lost raptor foraging habitat.

SMUD will implement the following compensatory mitigation to offset net impacts on foraging habitat for breeding Swainson's hawks and other raptor species. Based on Swainson's hawk nest locations documented in recent years, no permanent project impacts on foraging habitat will occur within 1 mile of an active Swainson's hawk. Depending on whether the 150m WTG option or the 136m WTG option is selected, 25.38 acres or 30.49 acres of suitable Swainson's hawk foraging habitat will be required to mitigate this loss.

SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands as follows:

- ▲ Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree (either 25.38 acres or 30.49 acres, depending on the WTG option selected) will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). This ratio is consistent with recommendations in DFG 1994: "Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of habitat mitigation land for each acre of urban development authorized [0.75:1 ratio]." All mitigation lands protected under this requirement shall be protected in perpetuity in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk. The easement will be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity, to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Sections 65965–65968 of the Government Code, as amended. As the State's trustee for fish and wildlife resources, CDFW is to be named as a third-party beneficiary under the conservation easement. SMUD will consult with CDFW in determining the suitability of the proposed mitigation lands to offset impacts of the project on Swainson's hawk foraging habitat.
- ▲ Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.

The DEIR states on page 3.3-117 that Swainson's hawk fatalities could occur as a result of WTG collisions. SMUD has been coordinating with CDFW before and after publication of the DEIR and will continue to work with CDFW. As described in Mitigation Measure 3.3-9(b), if unauthorized take of a federally listed or state-listed endangered or threatened avian or bat species occurs during project operation, SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery, and will submit written documentation of the take to the appropriate agency within 2 calendar days. The documentation will describe the date, time, location, species, and if possible, cause of unauthorized take. Although not expected to occur, SMUD will implement any measures to avoid, minimize, or compensate for possible take in consultation with the USFWS and/or CDFW, including obtaining an Incidental Take Permit as appropriate. Also, see Mitigation Measure 3.3-9g *Implement Adaptive Management*.

- L1-5 Burrowing Owl. *The commenter states that western burrowing owl is designated as a California Bird Species of Special Concern and is known to be present in the project area. The commenter observes that Mitigation Measure 3.3-4b proposes*

passive relocation to mitigate impacts on occupied burrows on the project site during the non-breeding season, and notes that CDFW does not consider exclusion of burrowing owls or "passive relocation" in and of itself sufficient to reduce the permanent loss of habitat to a less-than-significant level, and that all possible avoidance and minimization measures need to be considered before temporary or permanent exclusion and closure of burrows is implemented to avoid "take." The commenter further states that measures need to be included in the CEQA document to avoid and minimize loss of burrowing owl foraging habitat.

As described on page 3.3-71 of the DEIR, AECOM biologists conducted a habitat assessment for burrowing owl throughout the project site and found no evidence of owl occupancy. The only potential habitat for this species occurs in areas of nonnative annual grassland (456 acres of the 8,997-acre study area), and where agricultural land is left fallow or is grazed. As summarized in Table 3.3-7 in the DEIR, a maximum of 1.13 acres of annual grassland would be affected by the project (0.66 acre of permanent impacts, and 0.47 acre of temporary impacts, less than 0.0005 percent of the project area's annual grassland habitat), and a maximum of 5.56 acres of temporary impacts would occur on fallow agricultural lands (no permanent impacts would occur on fallow lands). Solano County has an abundance of land known to or with potential to support burrowing owls (Solano Habitat Conservation Plan, Solano County Water Agency, 2012). Because of the limited availability of suitable foraging habitat in the project area, the relatively small acreage of impacts to suitable habitat, and the relative abundance of foraging owl habitat in the County and the region, the impact of this loss of the marginal potential foraging habitat for burrowing owl would not be significant, and no mitigation is required.

As discussed on page 3.3-117 of the DEIR, the closest burrowing owl sighting relative to the project area occurred in 2014 and was recorded in Montezuma, approximately 1.5 miles from the project site, although SMUD staff members and consultants occasionally have observed evidence of burrowing owl overwintering on the project site during the nonbreeding season. Although burrowing owl is unlikely to occur on the project site, implementation of Mitigation Measure 3.3-4b would require protocol-level preconstruction surveys for burrowing owl, and appropriate seasonal buffers would be established if a burrowing owl burrow is detected, in accordance with current CDFW guidelines.

Passive relocation also is discussed under Mitigation Measure 3.3-4b, regarding the unlikely event that a burrow would be detected that could be adversely affected by project construction. Mitigation Measure 3.3-4b has been revised to require consultation with CDFW to determine if passive relocation would be appropriate to avoid impacts on wintering or nesting burrowing owls, and to require mitigation at a 3:1 ratio to offset habitat loss. Mitigation Measure 3.3-4b has been revised as shown below.

Mitigation Measure 3.3-4b: Avoid and minimize impacts on burrowing owls.

To avoid and minimize impacts on burrowing owls, SMUD will implement the following guidelines adapted from the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012):

- ▲ SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 500 feet of proposed construction. The take avoidance surveys, consisting of up to four visits, shall be initiated within 30 days of and completed at least 14 days before construction is initiated at a given location. In areas with burrows or refuge that could potentially support burrowing owls, a clearance visit shall be conducted within 24 hours of construction, including when construction work is reinitiated after a lapse of two or more weeks.
- ▲ SMUD will avoid disturbing active western burrowing owl nests and occupied nesting burrows.
 - In accordance with standard CDFW mitigation guidelines, SMUD and its construction contractor will avoid disturbance at occupied burrows in accordance with the following seasonal distance buffers for low, medium, and high levels of disturbance (CDFG 2012):
 - April 1 – August 15: 200 m (low), 500 m (medium), and 500 m (high)
 - August 16 – October 15: 200 m (low), 200 m (medium), and 500 m (high)
 - October 16 – March 31: 50 m (low), 100 m (medium), and 500 m (high)
 - These distances may be increased or decreased if, as determined by a qualified biologist, a different distance is required to ensure construction activities will not adversely affect occupied burrows or disrupt breeding behavior.
- ▲ If a qualified biologist, in consultation with CDFW, determines that construction could adversely affect occupied burrows during the September 1–January 31 nonbreeding season, ~~the qualified biologist~~ SMUD shall consult with CDFW to determine if implement passive relocation using one-way doors, in accordance with guidelines prepared

by the California Burrowing Owl Consortium (CDFG 2012), should be implemented, and if off-site compensatory mitigation is required to offset habitat loss. Compensatory mitigation for loss of burrowing owl habitat would require protection of suitable mitigation lands in perpetuity at a minimum 3:1 mitigation ratio, and through coordination with CDFW.

- L1-6 Raptor Foraging Habitat. The commenter notes that reclamation of roads is briefly discussed in association with Impact 3.3-5 (removal and modification of raptor nesting, foraging, and roosting habitat during project construction) and comments that the acreage of reclaimed roads is subsequently deducted from the total acreage of permanent impacts on foraging habitat. The commenter notes that habitat structure and the value of the reclaimed acreage is not described or mapped in the DEIR and expresses the opinion that these reclaimed lands may not be suitable for mitigation. The commenter further notes that counting reclaimed land as foraging land conflicts with Mitigation Measure 3.3-9a: Avoid and minimize operational impacts on birds and bats, which calls for maintaining a landscape in the project area that "does not encourage bird or bat occurrence" and implementing a prey management program to reduce prey that could attract eagles and other raptors. The commenter states that the reclaimed acreage should therefore not be considered as mitigation habitat nor should it be deducted from cumulative project impacts, without consultation with and concurrence of CDFW and USFWS.*

As discussed on page 3.3-103 of the DEIR, SMUD would remove and restore 14.22 acres of access roads as part of the repowering process in the Solano 4 West portion of project site. The reclamation would involve removing gravel from the roadways and restoring roadway surfaces to support surrounding agricultural uses (grazing or dryland farming). Approximately 0.86 acre of this restoration area would overlap the project footprint for the 136m WTG option and 0.02 acre would overlap the project footprint for the 150m WTG option. This acreage would be reclaimed as part of project activities. Therefore, the net restoration acreages associated with each project option would be slightly less than 14.22 acres. This acreage would be restored to the same grazing and dryland farming conditions of the immediately adjacent habitat.

As stated on page 3.3-96 of the DEIR, most of these permanent impacts would occur on grazed, actively farmed, or fallow agricultural lands. Agricultural practices generally follow a 1- to 3-year crop rotation cycle (i.e., wheat [*Triticum aestivum*], barley [*Hordeum vulgare*], and oats [*Avena sativa*]), with predominantly cattle or sheep grazing and fallow years following planting. The Solano 4 West site was disked for planting in April 2018. Use of these reclaimed lands for grazing or dryland farming would not be considered mitigation for loss of raptor foraging habitat. Rather, because they would be used for grazing and dryland farming, as are the areas that would be developed on the property as part of the project, the reclaimed land would be deducted from the total acreage

of grazing and dryland farming. Thus, from a net value perspective, the DEIR's evaluation of existing and future foraging habitat for raptors remains accurate.

L1-7 Operational Impacts on Birds and Bats. The commenter states that the DEIR estimates fatalities of 312 to 641 individual birds and 169 to 356 bats per year during project operation but notes that it is not clear how the mitigation measures would sufficiently reduce these impacts, and thus the commenter requests quantifiable and enforceable success criteria. The commenter also expresses the opinion that a single survey at all turbines is insufficient to determine mortality trends and validate preconstruction mortality estimates, and recommends annual mortality monitoring for a minimum of 5 years post-construction, followed by periodic monitoring every 3 years for the life of the WTG operation, because biological and operational conditions may change. The commenter recommends that survey methodology be developed in consultation with CDFW and USFWS, and include specific, quantifiable triggers for initiating implementation of Mitigation Measure 3.3-9h. The commenter further states that all mortalities on the project site need to be reported to CDFW and USFWS immediately on discovery.

The predictions of future annual avian and bat fatalities on the project site, described in Table 3.3-11 and Table 3.3-12, respectively, are based on more than 10 years of data from post-construction monitoring studies, conducted at eight windfarms in the WRA (also see Table 3.3-10 regarding details of studies). The information from these studies is expected to reflect probable levels of project-related avian mortality because of the similarity in landscape, land use and habitat between the proposed project site and other projects in the WRA. While the estimates included in DEIR are high, it is so because the predicted number of annual mortalities in these tables are conservatively based on values ranging from the weighted average of all studies (lower number) to the maximum estimated mortality rate observed across all eight studies. This range is considered to be conservative because the maximum estimated mortality rates represent the extreme upper end of possible mortality rates, while the observed mortality rates would most likely be closer to the weighted mean and could be lower than that. As described in page 3.3-114 of the DEIR, most of the avian and bat mortalities would involve primarily common species, which are characterized as having relatively large and stable populations. Impacts on many of these species would be dispersed across populations in a broad geographic area, particularly for species that breed elsewhere and experience mortality when migrating through or overwintering on the project site. Therefore, the operational impact on common bird and bat species would be less than significant, and no mitigation is required.

The triggers for implementation of the actions described in Mitigation Measure 3.3-9h are stated in the measure and would include a project-related fatality of one or more federal or State-listed species or one or more State fully protected species. In addition, implementation of Mitigation Measure 3.3-9h would be

triggered if avian or bat mortality resulting from project operation exceeded the maximum estimated fatality rates shown in Tables 3.3-11 and 3.3-12 for special-status birds or bats as well as for common species.

The commenter's recommendation that five years of post-construction monitoring be conducted is a considerably greater monitoring effort than that recommended in California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and DFG 2007). Furthermore, monitoring studies have been conducted from eight other projects within the WRA for over 10 years and an abundance of post-construction monitoring information is already available for the WRA to inform adaptive management and mitigation for the Project.

The following revision has been made to Mitigation Measure 3.3-9b, to clarify that post-construction monitoring would not consist of a single survey at all turbines, but rather would require monthly surveys at all turbines for 1 year, and annual "clean sweep" surveys of all turbines for the life of the project.

Mitigation Measure 3.3-9b: Conduct bird and bat mortality monitoring.

To assess operational impacts on birds and bats and inform potential adaptive management and mitigation approaches, SMUD will conduct 1 year of postconstruction mortality monitoring in the project area, as follows:

- ▲ Qualified biologists shall monitor bird and bat mortality annually throughout the project area in accordance with the requirements set forth below, which incorporate guidelines described in SMUD's Solano BBCS (SMUD 2013), SMUD's Final Eagle Conservation Plan (SMUD 2014), and the California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and DFG 2007). The monitoring shall be conducted so that sufficient information is available to allow evaluation of WTG design characteristics and location effects that contribute to mortality, including information about the species, number, location, and distance of dead birds relative to WTG locations; availability of raptor prey species; and cause of bird and bat mortalities.
- ▲ Monitoring will be conducted monthly for 1 year at all turbines in the Solano 4 Wind Project area after the first delivery of power, and will include but not be limited to the following methods unless otherwise determined appropriate by SMUD:
 - The standard search radius will be 100 meters to account for terrain and WTG height.

- A sufficient number of “road and pad” searches will be conducted to 150 meters to determine the proportion of carcasses falling outside of the standard (100-meter) search radius.
 - Searcher efficiency trials will be conducted for four seasons and will be sufficient to analyze differences in carcass size (small/medium/large) and vegetative cover.
 - Data will be analyzed using procedures described by the California Energy Commission and CDFW (CEC and CDFG 2007), or newer approaches (e.g., General Estimator [Dalthorp et al. 2018], the Evidence of Absence model [Dalthorp et al. 2017]). The data analysis will address adjusted fatality rates annually, seasonally, and by species. An annual report will be prepared each year and a final report will be prepared after the 1-year monitoring period.
 - If a carcass with a band is found in the project area, SMUD will promptly report the banding information to USFWS’s Bird Banding Laboratory. SMUD will ~~coordinate~~consult with the laboratory to include any information provided by USFWS that is pertinent to avian mortality at the project site, if any, in the annual monitoring reports.
- ▲ After postconstruction monitoring data have been obtained, SMUD will review the data. In consultation with USFWS and CDFW, SMUD will determine which specific WTGs, if any, generate disproportionately high levels of avian mortalities (based on evidence of statistically significant higher levels of mortality relative to other WTGs), and whether adaptive management measures are needed to reduce or avoid mortalities at those specific WTGs.
 - ▲ If unauthorized take of a federally listed or state-listed endangered or threatened avian or bat species occurs during project operation, SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery, and will submit written documentation of the take to the appropriate agency within 2 calendar days. The documentation will describe the date, time, location, species, and if possible, cause of unauthorized take. Although not expected to occur, SMUD will implement any actions required or recommended by measures to avoid, minimize, or compensate for possible take in consultation with the USFWS and/or CDFW, including obtaining an Incidental Take Permit as appropriate as a result of the unauthorized take. Also see Mitigation Measure 3.3-9g Implement Adaptive Management.
 - ▲ SMUD will design and conduct postconstruction mortality monitoring in a way that ensures at least a 50 percent chance of detecting mortality of large raptors (including golden eagle and Swainson’s hawk) caused by

search area around the WTGs, the proportion of WTGs searched, or other standard parameters set forth above.

- ▲ After postconstruction monitoring activities, SMUD will conduct an annual “clean sweep” survey around all Solano 4 turbines each subsequent calendar year for the life of the project. In addition, SMUD will continue its current practice of incidental monitoring of the project area ~~will continue~~ through reporting of incidental fatalities or injured birds by on-site staff to the Avian Reporting System (see Mitigation Measure 3.3-9h, “Implement Adaptive Management to Address Disproportionate Mortality of Special-Status Birds or Bats,” below). SMUD will also continue to report incidental fatalities or injured birds in compliance with its USFWS Special Purpose Utility Permit (Permit #~~MB98730A~~ #MB189818-0). As required in Mitigation Measure 3.3-9b SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery any unauthorized take of a federally listed or state-listed endangered or threatened species.

L1-8 Filing Fees. The project would have an impact on fish and/or wildlife, and assessment of filing fees would be necessary. The fees would be payable on filing of the Notice of Determination by the Lead Agency and would serve to help defray the cost of environmental review by CDFW. Payment of the fee is required for the underlying approval for the project to be operative, vested, and final. (14 California Code of Regulations, Section 753.5; Fish and Game Code, Section 711.4; Public Resources Code, Section 21089).

SMUD will remit the appropriate filing fee as required by Section 711.4 of the Fish and Game Code, and Section 21089 of the Public Resources Code upon filing of the NOD.

L1-9 Conclusion. The commenter notes that the feasible mitigation measures described in the comment letter should be incorporated as enforceable conditions into the final CEQA document for the project and provides contact information for CDFW staff who are available to answer questions.

SMUD will include all mitigation measures in the DEIR, including revisions made in the FEIR into the final mitigation monitoring and reporting program (MMRP). SMUD appreciates the input and information that CDFW has provided before and after publication of the DEIR and will continue to coordinate with CDFW as needed throughout the CEQA and permitting process for the project.

DEPARTMENT OF TRANSPORTATION

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Letter 2

Making Conservation
a California Way of Life.

September 3, 2019

Mr. Ammon Rice
Sacramento Municipal Utility District
6201 S Street, MS H201
Sacramento, CA 95817

Re: Draft Environmental Impact Report - Solano 4 Wind Project; SCH# 2019012016

Dear Mr. Rice:

The California Department of Transportation, Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety, noise, and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public-use and special-use airports and heliports. The following comments are offered for your consideration.

The Solano 4 Wind Project (project) proposes the construction of up to 22 new wind turbine generators (WTGs) within the Solano County Wind Resource Area in southern Solano County. The closest of the two project areas is located approximately 15 miles southeast of Travis Air Force Base (Travis AFB), and five miles southwest of Rio Vista Municipal Airport. The existing WTGs will be decommissioned, and new, technologically advanced WTGs will be constructed in the project areas.

In accordance with CEQA, Public Resources Code Section 21096, the California Airport Land Use Planning Handbook (Handbook) must be utilized as a resource in the preparation of environmental documents for projects within airport land use compatibility plan (ALUCP) boundaries or if such a plan has not been adopted, within two miles of an airport. The Handbook is a resource that should be applied to all airports and is available on-line at:
<https://dot.ca.gov/programs/aeronautics/airport-land-use-planning>

The project site is completely within the Travis AFB ALUCP boundaries as adopted by the Solano County Airport Land Use Commission (ALUC). Therefore, in accordance with the Handbook and relevant sections of Article 3.5 of the State Aeronautics Act (SAA) in the Public Utilities Code, this project

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability"*

2-1

2-2

2-3

Mr. Ammon Rice
September 3, 2019
Page 2

must be referred to the ALUC for a consistency determination with their ALUCP. The ALUC has prepared and adopted an ALUCP for Travis AFB pursuant to the SAA and the Handbook. Despite the assertion in the Draft Environmental Impact Report, that the Federal Aviation Administration (FAA) aeronautical study and determination of no hazard would preempt the ALUC's policies preventing aviation radar system interference, the ALUC could still find this project inconsistent with their ALUCP. An ALUC review and consistency determination is required to be a properly noticed and public process.

2-3
Cont'd

Also, the FAA aeronautical study states clearly that it does not relieve sponsors from compliance with other laws and regulations of any federal, state or local governing body.

This project is not exempt from ALUC review under the SAA, as Government Code section 53091(d) and (e) expressly refers to building and zoning ordinances of a county and city, and thus inapplicable. Unlike a county and the city, the ALUC was established, pursuant to the SAA for the purposes of ensuring the orderly expansion of airports and promulgating appropriate land use measures in Solano County. (see section 21670) The ALUC is a statutorily created, quasi-legislative, public administrative agency that is responsible for conducting airport land use compatibility planning and preventing the creation of new noise or safety problems in the vicinity of public use airports. An ALUC is not a county or city as defined in Government Code section 53091(d) and (e).

2-4

The SAA mandates the ALUC to prepare and adopt an airport land use compatibility plan, as it is one of the ALUC's primary duties. The ALUCP shall be guided by the height, use noise, safety and density criteria contained in the Handbook, a handbook published by the Division; and not by a county or a city. The Division reviews the ALUCP for compliance.

2-5

If the ALUC determines that the proposed action is inconsistent with the ALUCP, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the ALUC by a two-thirds vote of its governing body after it makes specific findings. At least 45 days prior to the decision to overrule the ALUC, the local agency's governing body shall provide to the ALUC and the Division a copy of the proposed decision and findings. The Division reviews and comments on the specific findings a local agency intends to use when proposing to overrule an ALUC. The Division specifically looks at the proposed findings to gauge their relationship to the overrule. Also, pursuant to the PUC 21670 et seq., findings should show evidence that the local agency is minimizing "...the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

2-6

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability"*

Mr. Ammon Rice
September 3, 2019
Page 3

In addition to submitting the proposal to the ALUC, it should also be coordinated with Travis AFB staff to ensure that the proposal will be compatible with future as well as existing airport operations.

2-7

The protection of airports from incompatible land use encroachment is vital to California's economic future. The public-use and military airports in Solano County are economic assets that should be protected through effective airport land use compatibility planning and awareness. Although the need for compatible and safe land uses near airports is both a local and State issue, airport staff, airport land use commissions and airport land use compatibility plans are key to protecting an airport and the people residing and working in the vicinity of an airport. Consideration given to the issue of compatible land uses in the vicinity of an airport should help to relieve future conflicts between airports and their neighbors.

2-8

These comments reflect the areas of concern to the Division with respect to airport-related noise, safety, and regional land use planning issues. Thank you for the opportunity to review and comment on this proposal. If you have any questions, please contact me at (916) 654-6223, or by email at philip.crimmins@dot.ca.gov.

Sincerely,



PHILIP CRIMMINS
Aviation Environmental Specialist

c: State Clearinghouse, Solano County ALUC, Travis AFB, FAA

Letter 2-1 Response	Philip Crimmins, Aviation Environmental Specialist California Department of Transportation, Division of Aeronautics October 3, 2019
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L2-1 Introduction to the Division; Brief Description of the Project. The commenter describes the California Department of Transportation, Division of Aeronautics (Division) as having technical expertise in the areas of airport operations safety, noise, and airport land use compatibility. The commenter states that the Division is a funding agency for airport projects and has permit authority for public-use and special-use airports and heliports. The commenter includes a brief description of the proposed Solano 4 Wind Project (project).

The commenter has provided introductory information describing the role of the Division, and its permit authority. The commenter has also provided a brief overview of the project. These comments are not directed at the adequacy of the DEIR, nor do they contain an argument raising significant environmental issues. No further response is required.

L2-2 California Airport Land Use Planning Handbook (Handbook). The commenter states that the Handbook must be used when preparing environmental documents for projects within airport land use compatibility plan (ALUCP) boundaries, or, if such a plan has not been adopted, within two miles of an airport.

As discussed in DEIR Section 3.9.1, page 3.9-1, SMUD consulted the California Airport Land Use Planning Handbook during preparation of the DEIR. The Handbook provides general guidance regarding development of wind energy facilities in the vicinity of airports and describes the role of airport land use commissions in planning for activities and projects near airports. As stated on page 3.9-1, the Handbook guidance was considered during preparation of the DEIR. Please also refer to the Master Response for additional detail on the project planning process employed by SMUD for the project. No revisions to the DEIR are necessary.

L2-3 Project Site within Travis AFB ALUCP boundaries. The commenter states that because the project site is within the Travis AFB ALUCP boundaries, the project must be referred to the Solano County Airport Land Use Commission (ALUC) for review and determination as to whether it is consistent with their airport land use compatibility plan (ALUCP). The commenter notes that although the DEIR

concludes that the Federal Aviation Administration (FAA) aeronautical study and determination of no hazard would preempt the ALUC's policies preventing aviation radar system interference, the ALUC could still find this project inconsistent with their ALUCP. The commenter states that an ALUC review and consistency determination is required to be a properly noticed and public process.

Although SMUD maintains that ALUC consistency determination process does not apply to this project, as noted in response to comment L4-2 of this Final EIR, on April 1, 2021, SMUD submitted an application for advisory review of ALUC consistency determination of the project. On May 20, 2021, after a noticed public hearing, the ALUC determined that the project was inconsistent with the LUCP, solely on the basis that the project's wind turbine generator (WTG) towers will be within line-of-sight of Travis AFB's Digital Airport Surveillance Radar (DASR) (See Appendix A for Westslope 2018a and Transcript of ALUC hearing May 20, 2021). Given that the ALUC determined that the project is inconsistent with the LUCP, after a public hearing, the SMUD Board of Directors may, consistent with evidence in the record before it, decide whether to overrule the ALUC determination after making the requisite findings under the State Aeronautics Act (SAA). SMUD already notified the ALUC and the Division on July 2, 2021, which is at least 45 days prior to its proposed decision to overrule the ALUC, and provided a copy of both the proposed decision and the supporting findings.

Please also refer to Downey Brand's letter dated April 26, 2019 in response to the Solano County ALUC comments on SMUD's Notice of Preparation for the Solano 4 Wind Project (NOP) included in Appendix C of this FEIR for additional information regarding SMUD's position on this issue.

L2-4 *No Exemption from ALUC Review. The commenter notes that the Federal Aviation Administration (FAA) aeronautical study states that it does not exempt sponsors from complying with other laws and regulations of any federal, state, or local governing body. The commenter states that the project is not exempt from ALUC review under the State Aeronautics Act (SAA), because Government Code sections 53091(d) and (e) expressly refer to the building and zoning ordinances of a county and city. The commenter points out that an ALUC is neither a county or a city.*

Please refer to Downey Brand's letter dated April 26, 2019 in Appendix C of this Final EIR, prepared in response to Solano County ALUC comments on

SMUD's NOP for the Solano 4 Wind Project for the project's exemption from ALUC review.

As stated in the Downey Brand letter, SMUD's wind turbine facilities are exempted from the ALUC provisions because under subdivisions (d) and (e) of Section 53091 of the Government Code, the zoning and building ordinances of a county or city *shall not* apply to the location or construction of facilities for the generation of electrical energy. SMUD, as a municipal utility district, is a local agency for purposes of Section 53091. (See *City of Lafayette v. East Bay Municipal Utilities District* (1993) 16 Cal.App.4th 1005, 1012; 78 Cal.Atty.Gen.Ops. 31 (1995); see also *Center for Biological Diversity v. County of San Bernardino* (2016) 247 Cal.App.4th 326, 344 fu.4 [county did not have authority to apply building and zoning regulations to water project proposed by local water agency pursuant to Sections 53091 and 53096].) Because a wind turbine facility is an electrical generation facility, the project qualifies for the exemptions under subdivisions (d) and (e) of Section 53091.

Further, the ALUC's authority in drafting the LUCP provisions are derived from Solano County's police powers and zoning authorities. Because the exemptions within Section 53091 are narrower and more specific than those announced in the SAA provisions, the Section 53091 exemptions control. Thus, SMUD's wind turbine facilities are exempt from the LUCP provisions.

Please also see Response to Comments L4-1 and L4-4.

The comment does not raise any issues concerning the adequacy of the DEIR or its analysis of the physical environmental impacts of the project. No revisions to the DEIR are necessary.

L2-5 ALUCP Must Comply with Division Specifications. The commenter states that the ALUC is required by the SAA to prepare and adopt an airport land use compatibility plan. The commenter further notes that the ALUCP must comply with the height, use noise, safety, and density criteria contained in the Division handbook, rather than the criteria of a county or city. The commenter states that the Division reviews the ALUCP for compliance.

The commenter provides information regarding ALUC requirement but raises no issues regarding the adequacy of the DEIR or any issues of environmental concern. No revisions are necessary. Further, as discussed above, please refer to the Downey Brand letter dated April 26, 2019 in Appendix C of this Final EIR, prepared in response to Solano County ALUC comments on SMUD's NOP regarding why the ALUC's powers in approving an LUCP is derived from and tantamount to that the land use authorities exercised by a county or a city in enacting zoning ordinances and other land use provisions.

L2-6 Process for a Local Agency to Overrule an ALUC. The commenter states that if the ALUC finds that the proposed action is inconsistent with the ALUCP, the local agency is notified. The commenter notes that the local agency may, after a public hearing and making specific findings, propose to overrule the ALUC by a two-thirds vote of its governing body. The commenter states that at least 45 days prior to the decision to overrule the ALUC, the local agency's governing body shall provide to the ALUC and the Division a copy of the proposed decision and findings. The commenter further describes the process, stating that the Division reviews and comments on the specific findings the local agency plans to use when proposing to overrule an ALUC. According to the commenter, per PUC 21670, the findings should provide evidence that the local agency is minimizing the public's exposure to excessive noise and safety hazards within areas around public airports "... to the extent that these areas are not already devoted to incompatible uses."

Please refer to response to comment L2-3 above and to the Master Response. The comment does not question the analysis and conclusions in the DEIR that the project's impacts related to noise and safety hazards will remain less than significant, with mitigation incorporated.

L2-7 Coordination with Travis AFB. The commenter states that the proposed action should also be coordinated with Travis Air Force Base (AFB) staff to ensure its compatibility with existing and planned future operations.

Please refer to the Master Response. SMUD has undertaken extensive coordination with Travis AFB in planning the project and has been actively engaged in addressing these issues with Travis AFB since inception of the project. The FAA Determination of No Hazard (DNH) extension process resulted in the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the Department of Defense (DOD) Military Aviation and Installation Assurance Siting Clearinghouse (the "DOD Siting Clearinghouse")

mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations (Military Aviation and Installation Assurance Siting Clearinghouse, accessed 2021). Travis AFB submitted its Solano 4 Wind Project Operational Risk Assessment to the Department of Defense (DOD) on January 11, 2021. SMUD received the requested extensions for the nineteen (19) Determinations of No Hazard (DNH) for the project on January 28, 2021. The result of the MRT review was a conclusion by the 60th Air Mobility Wing of “[a]s proposed, Solano 4 Wind project should have minimal negative impact on Travis Operations” (Simmons 2021). SMUD also received a letter dated February 9, 2021 from Steven J. Sample, Executive Director, Military Aviation and Installation, Assurance Siting Clearinghouse stating that as a result of discussions between SMUD and the U.S. Air Force, the construction of the project, submitted to the FAA on April, 17, 2020, will not present an adverse impact to military operations (See FAA Determinations, and letters from U.S. Colonel Corey Simmons and Steven J. Sample, in Appendix B). Based on substantial evidence, including the evaluation and analysis of its own aeronautics’ experts, SMUD has determined that there will be no significant safety or other impacts to Travis AFB arising from this project.

L2-8 Reducing Land Use Conflicts in Areas Near Airports. The commenter states that it is important to protect California airports and the economic benefits they provide from incompatible land use encroachment. The commenter asks that consideration be given to the issue of compatible land uses in areas near airports in order to lessen future conflicts.

The proposed project is located within the Solano Wind Resource Area and has been designed to avoid or minimize any possible impacts related to airport operations and safety hazards. In particular, both the existing and replacement wind turbines have proven to be compatible with existing airport operations. Wind power generation has been occurring in the Solano Wind Resource Area for many years and there is no evidence that this has resulted in harm to local economic benefits or encroachment on other land uses. Please also see the Master Response. No revisions to the DEIR are necessary.

**DELTA STEWARDSHIP COUNCIL**
*A California State Agency***Letter 3**980 NINTH STREET, SUITE 1500
SACRAMENTO, CALIFORNIA 95814
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(916) 445-5511

September 6, 2019

Ammon Rice
Sacramento Municipal Utility District
6201 S Street, MS H201
Sacramento, CA 95817

Via email: Ammon.Rice@smud.org

Chair
Susan Tatayon**Members**
Frank C. Damrell, Jr.
Randy Fiorini
Michael Gatto
Maria Mehranian
Oscar Villegas
Ken Weinberg**Executive Officer**
Jessica R. Pearson**RE: Comments on the Draft Environmental Impact Report for the Solano 4 Wind Project,
SCH#2019012016**

Dear Mr. Rice:

Thank you for the opportunity to comment on the Sacramento Municipal Utility District (SMUD) Solano 4 Wind Draft Environmental Impact Report (DEIR). The Delta Stewardship Council (Council) previously sent a letter with comments on the Notice of Preparation (NOP) for the Project on February 6, 2019. Thank you for acknowledging these comments in your Scoping Report (Appendix A to the DEIR), and for meeting with Council staff to discuss this project on April 17, 2019. The Council recognizes SMUD's objectives to diversify its energy portfolio, increase the supply of renewable energy sources, and support the long-term viability of agriculture in the Montezuma Hills.

3-1

The Council is an independent State of California agency established by the Sacramento-San Joaquin Delta Reform Act of 2009 (SBX7 1; Delta Reform Act). As stated in the Delta Reform Act, the State has coequal goals for the Delta: providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place (Water Code §85054). The Council is charged with furthering California's coequal goals for the Delta through the adoption and implementation of the Delta Plan, regulatory portions of which became effective on September 1, 2013.

3-2

Covered Action Determination and Certification of Consistency with the Delta Plan

Through the Delta Reform Act, the Council was granted specific regulatory and appellate authority over certain actions that take place in whole or in part in the Delta and Suisun Marsh, which are referred to as "covered actions".

"Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."

— CA Water Code §85054

Ammon Rice
Comments on the Draft Environmental Impact Report for the Solano 4 Wind Project
September 6, 2019
Page 2

The Council exercises that authority through development and implementation of the Delta Plan. State and local agencies are required to demonstrate consistency with 14 regulatory policies identified in the Delta Plan when carrying out, approving, or funding a covered action.

Based on the project description in the DEIR, the proposed project appears to meet the definition of a covered action as set forth in Water Code section 85057.5(a) because it:

1. Would occur in whole or in part within the boundaries of the Legal Delta (Water Code section 12220) or Suisun Marsh (Public Resources Code section 29101). The project site includes two subareas owned by SMUD: Solano 4 East and Solano 4 West. Based on Exhibit 2-2 in the DEIR Project Description (DEIR, p. 2-3), portions of the Solano 4 West site are located within the boundaries of the Legal Delta and Suisun Marsh.
2. Would be carried out, approved, or funded by the State or a local public agency. SMUD, a local public agency, is the lead agency for this project.
3. Would have a significant impact on the achievement of one or both of the coequal goals or the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta. It appears that this project could have a significant impact on the achievement of the coequal goal of ecosystem restoration.
4. Would be covered by one or more of the regulatory policies contained in the Delta Plan (23 CCR sections 5003-5015). Delta Plan regulatory policies that may apply to the proposed project are discussed in the next section, below.

3-2
Cont'd

It is the State or local agency approving, funding, or carrying out the project that ultimately must determine if that project is a covered action and, if so, file a Certification of Consistency with the Delta Plan (23 CCR section 5001(j)(1)(E)(3)) prior to project implementation. The DEIR lists a variety of federal, state, and local agency permits and approvals required for the proposed project (Table 2-4, page 2-27) but does not identify a Certification of Consistency with the Delta Plan among these requirements. In the Final EIR, please add a reference to the Council's Certification of Consistency process in Table 2-4.

3-3

In addition, the DEIR does not identify the Delta Plan in its description of the regulatory setting within any resource section. Please add a description of the Delta Plan to the regulatory setting discussion within the Biological Resources, Geology and Soils, Hydrology and Water Quality, and Land Use sections of the Final EIR, in addition to other relevant resource sections.

3-4

Delta Plan Regulatory Policies

The following section describes regulatory Delta Plan policies that may apply to the proposed project based on the available information in the DEIR. This information is offered to assist SMUD to describe the relationship between the proposed project and the Delta Plan in the EIR, to ensure that the EIR supports the project's eventual Certification of Consistency.

3-5

Ammon Rice
Comments on the Draft Environmental Impact Report for the Solano 4 Wind Project
September 6, 2019
Page 3

General Policy 1: Detailed Findings to Establish Consistency with the Delta Plan Delta Plan Policy **G P1** (23 CCR section 5002) specifies what must be addressed in a Certification of Consistency by a proponent of a project that is a covered action. The following is a subset of these requirements which a project must fulfill to demonstrate consistency with the Delta Plan.

Best Available Science

Delta Plan Policy **G P1(b)(3)** (23 CCR section 5002(b)(3)) states that covered actions must document use of best available science as relevant to the purpose and nature of the project. The regulatory definition of "best available science" is provided in Appendix 1A of the Delta Plan (<http://deltacouncil.ca.gov/pdf/delta-plan/2015-appendix-1a.pdf>). Six criteria are used to define best available science: relevance, inclusiveness, objectivity, transparency and openness, timeliness, and peer review. (23 CCR section 5001(f)). For this project, this policy generally requires that the process used by SMUD to analyze project alternatives, impacts, and mitigation measures for the project be clearly documented and effectively communicated to foster improved understanding and decision making.

Mitigation Measures

Delta Plan Policy **G P1(b)(2)** (23 CCR section 5002(b)(2)) requires that covered actions not exempt from CEQA must include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan as amended April 26, 2018 (unless the measures are within the exclusive jurisdiction of an agency other than the agency that files the certification of consistency), or substitute mitigation measures that the agency finds are equally or more effective. These mitigation measures are identified in Delta Plan Appendix O (<http://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf>). The DEIR identifies several significant and potentially significant impacts on Aesthetics, Air Quality, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, and Transportation, and proposes a number of measures to mitigate these impacts. Council staff recommends that SMUD review the consistency and effectiveness of proposed mitigation measures with corresponding applicable and feasible Delta Plan mitigation measures for each of these impacts. (Please note that this regulatory requirement has been amended since SMUD issued the NOP for this project.)

Ecosystem Restoration Policy 3: Protect Opportunities to Restore Habitat

Delta Plan Policy **ER P3** (23 CCR section 5007) states that within priority habitat restoration areas depicted in Appendix 5, significant adverse impacts to the opportunity to restore habitats at appropriate elevations (as described in 23 CCR section 5006) must be avoided or mitigated. Appendix 5 is available at <http://deltacouncil.ca.gov/pdf/delta-plan/2013-appendix-b-combined.pdf> (starting on page 72). Based on Exhibit 2-2 in the DEIR Project Description

3-5
Cont'd

Ammon Rice
Comments on the Draft Environmental Impact Report for the Solano 4 Wind Project
September 6, 2019
Page 4

(DEIR, p. 2-3) portions of the Solano 4 West site are located within the boundaries of the Suisun Marsh Priority Habitat Restoration Area (PHRA).

Exhibit 2-2 does not identify any project components (e.g., turbines, access roads, collection and home run lines) within the Suisun Marsh PHRA, but the DEIR states that “the final locations of [wind turbine generators] would be determined after SMUD completes the procurement process” (Page 2-10), leaving open the possibility that these primary project components could ultimately be sited within the PHRA. In addition, the DEIR discusses other potential project elements (including meteorological towers, road improvements, and staging areas) that are not mapped. Therefore, the Council is unable to ascertain whether such features would be sited within the PHRA. Please include a discussion in the Final EIR that clarifies whether any project components or temporary project elements would be located within the Suisun Marsh PHRA, and if so, how any adverse impacts to the opportunity to restore habitats at appropriate elevations within the PHRA would be avoided or mitigated. Regardless of the proposed location of project components, SMUD should consider whether significant adverse impacts to the opportunity to restore habitat at appropriate elevations could occur within the Suisun Marsh PHRA due to construction activities or operation of project components.

3-5
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Please discuss in the Final EIR whether the project could result in significant adverse impacts to the opportunity to restore habitat within the Suisun Marsh PHRA, and if so, how those impacts would be avoided or mitigated. Specifically, in the Biological Resources section, please identify whether any of the freshwater wetland acreage that would be impacted by project construction (as identified in Table 3.3-7) is located within the Suisun Marsh PHRA. Also, in the Geology and Soils section, please identify whether Impact 3.5-1: Substantial soil erosion or loss of topsoil could occur within and/or affect wetland or marsh habitat within the Suisun Marsh PHRA.

3-6

Ecosystem Restoration Policy 5: Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species

Delta Plan Policy **ER P5** (23 CCR section 5009) requires that the potential for new introductions of or habitat improvements for invasive, nonnative species must be fully considered and avoided or mitigated in a way that appropriately protects the ecosystem. This policy applies to projects that have a reasonable probability of introducing or improving habitat conditions for nonnative invasive species. The Biological Resources section of the DEIR identifies Impact 3.3-12: Indirect Impacts on Riparian Habitat as less than significant with implementation of Mitigation Measures 3.3-12a through 3.3-12d. Impact 3.3-12 states that, “Project construction and operation could indirectly affect riparian habitat by altering existing topography and hydrology, causing fugitive dust to accumulate on vegetation, and potentially contributing to the introduction and spread of nonnative invasive plant species” [emphasis added] (DEIR, p. 3.3-128). The DEIR also states that “[o]perational impacts, including the potential for introduction and spread of invasive plant species, would be addressed by continuing implementation of SMUD’s land management plan, which includes management of

3-7

Ammon Rice
Comments on the Draft Environmental Impact Report for the Solano 4 Wind Project
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Page 5

invasive weeds (Althouse and Meade 2018)." (DEIR, pp. 3.3-128 – 3.3-129) Mitigation Measure 3.3-12c also describes a reclamation and revegetation plan that SMUD would prepare prior to implementation of the project. That plan would draw upon the goals and objectives of SMUD's land management plan, and would require, among other things, weed control measures which may include cultural, mechanical, and/or chemical methods (DEIR, pp. 3.3-130 – 3.3-131).

The only riparian habitat discussed or described in the DEIR appears to be located within the Solano 4 East subarea which is located outside of the boundaries of the Legal Delta and Suisun Marsh (DEIR, pp. 3.3-18 – 3.3-19). However, portions of the Solano 4 West subarea that fall within the boundaries of the Legal Delta and Suisun Marsh include other sensitive habitat types that could be susceptible to the introduction and spread of nonnative invasive plant species through the same types of construction activities that could lead to potentially significant impacts described for Impact 3.3-12. Based on Exhibit 3.3-1, these existing habitat types include estuarine and marine wetlands, freshwater wetlands, tidal brackish wetlands, and tidal marsh upland (DEIR, p. 3.3-17).

Please revise this impact discussion in the Final EIR to discuss the potential for introduction and habitat improvements for invasive, nonnative species in the Solano 4 West subarea in greater detail, describing how implementation of SMUD's land management plan and Mitigation Measure 3.3-12c would avoid introduction and habitat improvements for invasive, nonnative species, or mitigate these potential impacts in a manner that appropriately protects the ecosystem. Also, please describe specifically how SMUD's land management plan and Mitigation Measure 3.3-12c are consistent with Delta Plan Mitigation Measure 4-1, as described in the Delta Plan Mitigation Monitoring and Reporting Program (MMRP) (<http://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf>).

Closing Comments

We invite SMUD to continue to engage with Council staff in early consultation. We are available to discuss topics outlined in this letter as you proceed in the next stages of your project and approval processes. Please contact Avery Livengood at (916) 445-0782 (Avery.Livengood@deltacouncil.ca.gov) with any questions.

Sincerely,



Jeff Henderson, AICP
Deputy Executive Officer
Delta Stewardship Council

3-7
Cont'd

3-8

Letter 3-1 Response	Jeff Henderson, AICP, Deputy Executive Officer Delta Stewardship Council September 6, 2019
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L3-1 *Introduction. The commenter thanks SMUD for acknowledging the Delta Stewardship Council (Council) NOP letter and discusses SMUD's objectives for the Solano 4 Wind Project.*

These comments are not directed at the adequacy of the DEIR, nor do they contain an argument raising significant environmental issues. No further response is required.

L3-2 *Consistency with Delta Plan. The commenter discusses the role of the Council in implementing the Delta Plan, and notes that the Delta Reform Act of 2009 requires local agencies to demonstrate consistency with regulatory policies identified in the Delta Plan when carrying out a covered action. The commenter states that the project appears to meet the definition of a covered action and notes that SMUD must make that determination. If SMUD determines that the project is a covered action, the commenter states that SMUD must file a Certification of Consistency with the Delta Plan and add a description of the Delta Plan to the regulatory setting discussion in the Biological Resources, Geology and Soils, Hydrology and Water Quality, and Land Use sections of the FEIR, in addition to other relevant resource sections.*

SMUD has determined that the project is not a covered action under the Delta Plan because it will not have an impact on the achievement of one or both of the coequal goals of the Delta Reform Act or the implementation of government-sponsored flood control programs to reduce risks to people, property, and state interests in the Delta. As discussed below in responses to comments L3-5 through L3-7, project construction activities and project operation will not result in direct or indirect impacts on estuarine and marine wetlands, tidal brackish wetlands, or tidal marsh uplands, will not interfere with opportunities to restore habitat in the Suisun Marsh, and will have no impact on the Delta Plan's goals of achieving ecosystem restoration.

L3-3 *Certificate of Consistency. The commenter states that if SMUD determines the project is a covered activity SMUD must file a Certification of Consistency with the Delta Plan with the Council prior to project implementation. The commenter requests addition of a reference to the Council's Certification of Consistency process in Table 2-4.*

As discussed in response to comment L3-2, SMUD has determined that the project is not a covered activity, therefore no changes are needed to Table 2-4.

- L3-4 Description of Delta Plan in DEIR. The commenter requests the FEIR be revised to add a description of the Delta Plan to the regulatory setting discussion in the Biological Resources, Geology and Soils, Hydrology and Water Quality, and Land Use sections of the FEIR, in addition to other relevant resource sections.*

As discussed above in the response to comment L3-2 SMUD has determined that the project is not a covered activity under the Delta Plan and therefore no discussion of the Delta Plan is needed in the of any of the resource sections of the FEIR.

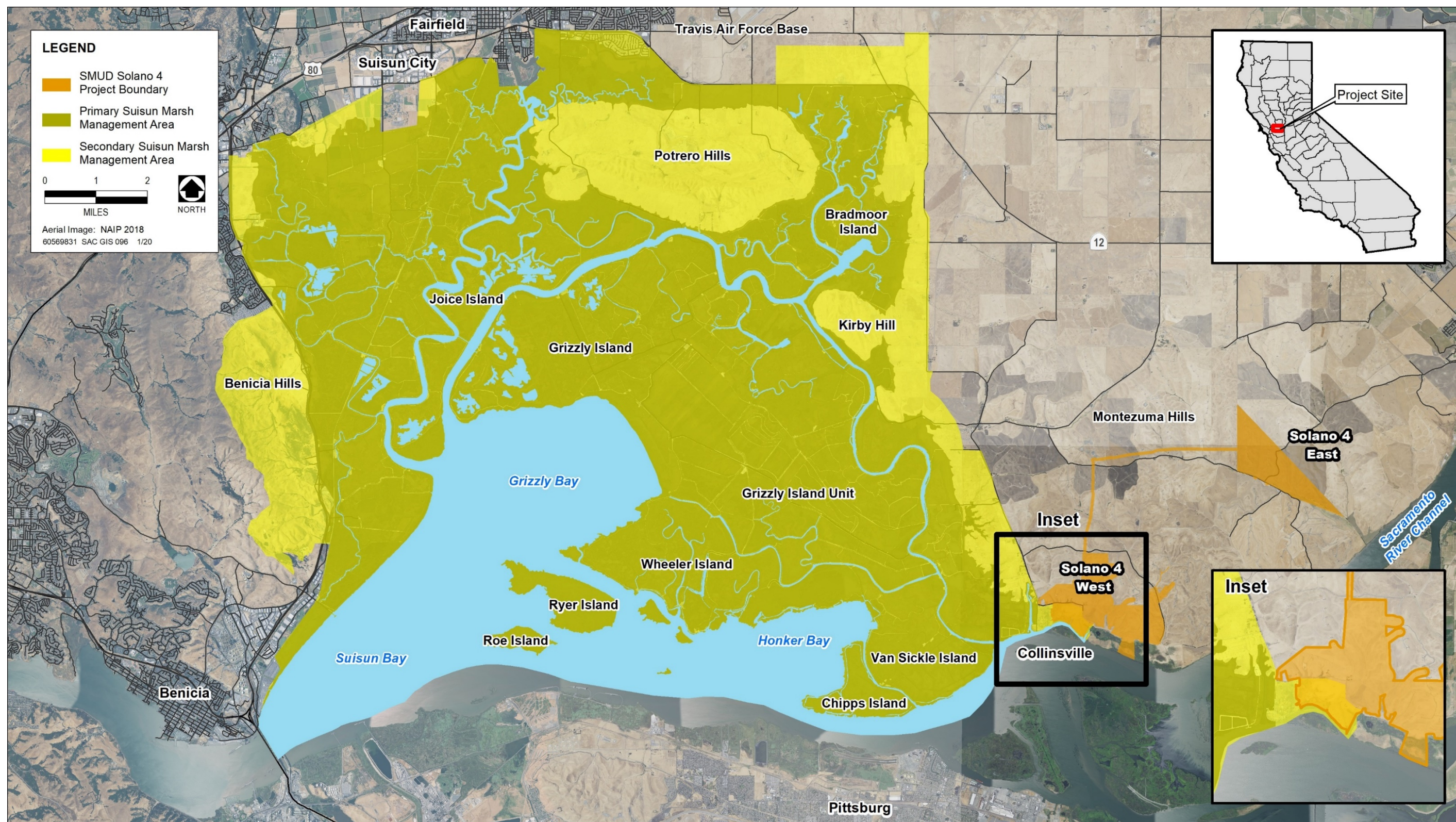
- L3-5 Delta Plan Regulatory Policies. The commenter provides a description of regulatory Delta Plan policies that the commenter believes would be relevant to the proposed project if SMUD determines that the project is a covered activity. The commenter references Ecosystem Restoration Policy 3: Opportunities to Restore Habitat and cites exhibit 5-1 in Appendix 5 which shows multiple areas in the Delta recommended for prioritization and implementation of habitat restoration projects. These areas include the Suisun Marsh, which is adjacent to the project site. The commenter requests clarification as to whether any project components or temporary project elements would be located within the Suisun Marsh Priority Habitat Restoration Area (PHRA), and an assessment as to whether the project could adversely affect opportunities for restoration.*

As shown in Figure 1, the western portion of SMUD's Solano 4 Wind project area overlaps with 182.2 acres of the Secondary Suisun Marsh Management Area. This is part of the property that SMUD owns; however, no components of the proposed project (turbines, collection/home run lines, access/local roads, or staging areas) are within the Suisun Marsh PHRA and no temporary or permanent construction and operational impacts will occur within this area (see DEIR 2.5 Project Characteristics and Components, pages 2-8 through 2-27). Thus, construction and operation of the proposed project will not affect ongoing and future planned restoration activities in the Suisun Marsh. No revisions to the DEIR are necessary.

- L3-6 Suisun Marsh PHRA. The commenter asks for a discussion in the Final EIR whether the project could result in significant adverse impacts to the opportunity to restore habitat within the Suisun Marsh PHRA, and if so, how those impacts would be avoided or mitigated. Specifically, the commenter requests that in the Biological Resources section, SMUD identify whether any of the freshwater wetland acreage that would be impacted by project construction (as identified in Table 3.3-7) is located within the Suisun Marsh PHRA. The commenter also requests that in the Geology and Soils section, the FEIR identify whether Impact 3.5-1: Substantial soil erosion or loss of topsoil could occur within and/or affect wetland or marsh habitat within the Suisun Marsh PHRA.*

As discussed above in response to comment L3-5, the proposed project will not result in adverse impacts to the opportunity to restore habitat in the Suisun Marsh PHRA. Impacts to wetlands and waters of the United States resulting from the proposed project will be minimal and will not occur to those communities targeted for restoration in the PHRA. Moreover, while a component of the Delta Plan, the rationale to make opportunities for restoration includes an assumption that baseline environmental conditions are degraded. Under CEQA, project impacts are measured against the baseline setting, which in this case is the actual physical conditions on the ground at the time of the Notice of Preparation or commencement of environmental review. (CEQA Guidelines, §§ 15125(a)(1), 15126.2(a).) The baseline does not include hypothetical situations, such as conditions that might occur under existing plans. (CEQA Guidelines, § 15125(a)(3).) As it stands, the project is not anticipated to have a significant adverse impact on wetlands, waters, and habitats beyond those already identified in the DEIR. Furthermore, impacts to these habitats would not occur within the Suisun March PHRA, as no project components are proposed in this area. No revisions to the analysis in the DEIR are necessary.

Table 3.3-7 of the DEIR describes a maximum of 0.03 acres of permanent impacts and 0.10 acres of temporary impacts on freshwater marsh/ephemeral drainages and wetlands, and none of these impacts are located within the PHRA. These impacts are a result of crossing and culverting an ephemeral drainage near the eastern portion of the project area in the Solano 4 West property. As discussed on page 27 of the *Preliminary Delineation of Waters of the United States, Including Wetlands: SMUD Solano 4 Wind Project* (in Appendix D of the DEIR), this ephemeral drainage neither flows into the Suisun Marsh nor is it hydrologically connected to the marsh; rather it flows east to the Sacramento River.



Source: SMUD 2019, DWR 2019

Figure 1. Suisun Marsh Protection Areas

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Implementation of best management practices and the avoidance and minimization measures described in the following mitigation measures from the DEIR will ensure that project construction would not result in indirect impacts on water quality of downstream drainages or wetlands, and that no substantial soil erosion or loss of topsoil habitat would occur.

- Mitigation Measure 3.3-12b: “Comply with Section 1600 streambed alteration agreement and CWA Sections 401 and 404 or the state’s Porter-Cologne Act.”
- Mitigation Measure 3.3-12c: “Develop a Reclamation and Revegetation Plan.”
- Mitigation Measure 3.3-12d: “Conduct Worker Awareness Training”
- Measure 3.3-13a “Avoid and Minimize Impacts on Wetlands and Other Waters of the United States”
- Mitigation Measure 3.5-1, “Prepare and Implement a SWPPP and Associated BMPs,”
- Mitigation Measure 3.7-1b, “Establish and Implement an Environmental Training Program,”
- Mitigation Measure 3.7-1c, “Prepare and Implement a Hazardous Substance Control and Emergency Response Plan,”
- Mitigation Measure 3.7-1d, “Prepare and Implement a Spill Prevention, Control, and Countermeasures Plan.”

L3-7 Ecosystem Restoration Policy: Non-Native Invasive Species. The commenter cites Delta Plan Policy ER P5 (23 CCR section 5009) which requires consideration of impacts associated with introducing invasive non-native plants and cites the DEIR discussion of potential indirect impacts of the project on riparian habitat, noting that a similar assessment of indirect impacts should be applied to estuarine and marine wetlands, freshwater wetlands, tidal brackish wetlands, and tidal marsh upland. The commenter requests additional detail on how implementation of SMUD’s land management plan and Mitigation Measure 3.3-12c would avoid introduction of invasive, nonnative species, or mitigate these potential impacts in a manner that appropriately protects the ecosystem. The commenter also requested a description of how SMUD’s land management plan and Mitigation Measure 3.3-12c are consistent with Delta Plan Mitigation Measure 4-1, as described in the Delta Plan Mitigation Monitoring and Reporting Program (MMRP).

DEIR Exhibit 3.3-1: *Project Site Land Cover* depicts all land cover types that occur within parcels owned by SMUD in the Solano 4 Wind project area and

includes areas and land cover types that will not be affected by project construction and operation. Direct and indirect impacts on estuarine and marine wetlands, tidal brackish wetlands, and tidal marsh upland were not explicitly discussed in the DEIR because, as described below, none will occur. Riparian habitat at the project site occurs close to proposed project construction activities, and project impacts on freshwater marsh/ephemeral drainages are described in the DEIR and are discussed above in the response to L3-6. All other sensitive habitat types present on the parcels owned by SMUD in the Solano 4 Wind project area occur far from proposed construction activities and the proposed footprint of project components.

Table 1 below summarizes the distance of the project footprint from estuarine and marine wetlands, tidal brackish wetlands, and tidal marsh upland for the 136M turbine option. No direct or indirect project impacts will occur on these sensitive habitat types because they are far from proposed construction activities, and because implementation of the mitigation measures described above in response to comments L3-5 and L3-6 will avoid and minimize potential indirect impacts. The same holds true for the 150M option.

The DEIR provides a thorough discussion and analysis of non-native invasive weeds at the project site (see DEIR pages 3.3-20-3.3-22) and includes mitigation to address the potential impacts associated with introduction and spread of non-native invasive weeds. Mitigation Measure 3.3-12c: “Develop a Reclamation and Revegetation Plan” provides performance standards and guidance on development of a plan that would avoid the introduction and spread of invasive weeds and prevent erosion. In addition, the plan will incorporate the goals and objectives of SMUD’s Land Management Plan for the Solano Wind Farm, which also provides detailed guidance for the management of invasive weeds. Implementation of this mitigation measure and of *SMUD’s Land Management Plan for the Solano Wind Farm* address the concerns expressed by the commenter regarding potential impacts of the project on sensitive habitat types from the introduction and spread of invasive weeds.

The DEIR mitigation measures described above in response to comments L3-5 and L3-6 are generally consistent with those described in the *Delta Plan MMRP*. However, SMUD’s Solano Wind project is not a covered activity under the Delta Plan, and therefore no detailed discussion of consistency with the Delta Plan MMRP is required.

Table 1. Distance of Project Impacts from Estuarine and Marine Wetlands, Tidal Marsh Uplands, Tidal/Brackish Marsh Wetlands for 136M Turbine Option

Wetland	Project Component	Disturbance Type	Distance (Feet)
Estuarine and Marine Wetlands	Access Roads	Permanent	1,191.38
	Local Roads	Permanent	824.71
	Turbines	Permanent	758.97
	Access Roads	Temporary	1,214.21
	Local Roads	Temporary	865.04
	Collection/Home Run Lines	Temporary	659.12
	Staging Areas	Temporary	5,436.14
Tidal Marsh Uplands	Access Roads	Permanent	576.82
	Local Roads	Permanent	630.57
	Turbines	Permanent	564.39
	Access Roads	Temporary	546.82
	Local Roads	Temporary	629.63
	Collection/Home Run Lines	Temporary	550.08
	Staging Areas	Temporary	5,436.81
Tidal/Brackish Wetlands	Access Roads	Permanent	1,263.74
	Local Roads	Permanent	5,751.86
	Turbines	Permanent	1,518.74
	Access Roads	Temporary	1,233.74
	Local Roads	Temporary	5,721.87
	Collection/Home Run Lines	Temporary	1,574.08
	Staging Areas	Temporary	6,469.48

L3-8 Closing Comments. The commenter invites SMUD to continue to engage with Council staff.

SMUD appreciates the input Council staff have provided on this project and the Council's offer for continued engagement on this project.

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DEPARTMENT OF RESOURCE MANAGEMENT**Letter 4**

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September 6, 2019

SMUD – Environmental Management
Attn: Ammon Rice
P.O. Box 15830 MS H201
Sacramento, CA 95852-1830

via email: ammon.rice@smud.org

Re: Solano 4 Wind Project Draft EIR

Dear Mr. Rice:

The County of Solano, through its Department of Resource Management, offers the following comments on the above-referenced Draft EIR (DEIR).

As an initial matter, we want to clarify that the Solano County Airport Land Use Commission (ALUC) is not a commission, agency, or part of County government. Although the County has a legal responsibility to provide staffing, quarters, and equipment necessary for the operations of the ALUC (see Pub. Res. Code, § 21671.5(c)), the ALUC operates as part of state government under the supervision of the California Department of Transportation, Division of Aeronautics. Therefore, the statements made on page 3.7-8 of the DEIR suggesting that the ALUC's Travis AFB Land Use Compatibility Plan (LUCP) are the legal equivalent of County zoning and building ordinances are incorrect. In addition, although the DEIR at pages 3.7-8 and 3.7-13 contends that SMUD may overrule an ALUC determination of inconsistency, the DEIR fails to explain how SMUD believes this can be accomplished. The DEIR fails to assess whether the evidence relied upon to prepare the DEIR would be sufficient to support those specific finding. Even if it were determined that SMUD has the ability to overrule the ALUC if specific factual findings are made it would not excuse SMUD from submitting the project to the ALUC for a consistency determination in conformance with the ALUC's procedural requirements. For that reason, the list of responsible and trustee agencies in section 2.9.2 and table 2-4 of the DEIR should be corrected to identify the ALUC's role with respect to this project.

4-1

4-2

4-3

At page 3.9-2, the DEIR states that SMUD's wind turbine facilities are exempt from County zoning and building ordinances pursuant to sections 53090 – 53097.5 of the Government Code. However, Chapter 2 of the DEIR describes the project as consisting of new turbines, new homerun lines, and various other components. The recent Court of Appeal decision in *City of Hesperia v. Lake Arrowhead Community Services District*, 37 Cal.App.5th 734 (July 19, 2019), holds that lines connecting a generating facility to the grid are "transmission lines" for purposes of Government Code section 53091(e). It is unclear from the DEIR whether the homerun lines qualify as transmission lines under the *City of Hesperia* decision, and whether the new homerun lines will be installed inside or outside of existing rights of way. The Solano County Zoning Ordinance requires approval of a discretionary use permit for installation of utility lines outside of an existing right of way. In addition, section 12808.5 of the Public Utilities Code requires a municipal utility district to follow a specified process when locating or constructing transmission or distribution lines; the DEIR does not discuss this required process. Due to the incomplete information provided in the DEIR, the County is not able to assess whether it has land use jurisdiction over any elements of the project.

4-4

4-5

SMUD – Environmental Management
Re: Solano 4 Wind Project DEIR
September 6, 2019
Page 2

In section 3.11, the DEIR discusses the project's potential impacts on County roads, concludes these impacts are potentially significant, and recommends two mitigation measures to reduce these impacts to a less-than-significant level. However, Mitigation Measure 3.11-2 merely requires SMUD to make a good faith effort to enter into a mitigate agreement for the project's impacts to various County roads. A good faith effort at mitigation, while commendable, is not alone sufficient to achieve mitigation. This recommended mitigation measure should be revised to require execution of a mitigation agreement prior to the start of construction.

4-6

As a general matter, Solano County is quite concerned with impacts that the proposed taller wind turbines will have on the Travis Air Force Base radar system. Taller turbines will exacerbate already identified impacts to the Travis System. The County's General Plan identifies the importance of Travis Air Force Base not only to the County but to the region as a whole. It is high recommended that this project be reconsidered until such time as impacts to Travis Air Force Base are fully addressed.

4-7

Sincerely,



Bill Emlen, Director
Department of Resource Management

Letter 4-1 Response	Bill Emlen, Director Solano County Department of Resource Management October 11, 2019
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- L4-1 Clarification that Solano County Airport Land Use Commission is not a Part of County Government. The commenter clarifies that the Solano County Airport Land Use Commission (ALUC) is not a part of County government. Although the County must provide staffing, quarters, and equipment to support ALUC operations, the ALUC operates as part of state government and is supervised by the California Department of Transportation, Division of Aeronautics. The commenter notes that statements made on page 3.7-8 of the DEIR suggesting that ALUC's Travis Air Force Base Land Use Compatibility Plan (LUCP) is the legal equivalent of a County zoning and building ordinance are incorrect.

Please refer to Downey Brand's letter dated April 26, 2019 in response to the Solano County ALUC comments on SMUD's Notice of Preparation for Solano 4 Wind Project (NOP) in Appendix C of this Final EIR (FEIR) for additional information regarding SMUD's position on this issue.

The ALUC's exercise of authority in drafting the LUCP is an exercise of the same zoning authority conferred by the Legislature upon cities and counties. Cities and counties draw their zoning authority from the state's general police powers. (See Cal. Const. art. XI, § 7 ["A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws"].) The Attorney General has made clear that the ALUC exercises its authority specifically by using zoning power, which derives from the general police powers possessed by cities and counties. (See 63 Cal. Atty. Gen. Ops. 641, at pp. 3-4 (1980) ["Attorney General Opinion No. 80-416"].) "Even though generally thought of in terms of city or county regulation, zoning is one exercise of the state's police power, and there is no impediment to the legislature granting that power to other agencies in the statewide interests." (*Id.* at p. 4.) This is precisely what the legislature has done in this case in creating the ALUC under the SAA.

The ALUC was established by Solano County on December 7, 1971 by Ordinance 781 to provide for orderly development of public airports in Solano County, as well as area surrounding airports to prevent new noise and safety problems.¹ The ordinance creating the ALUC and the powers delegated to the ALUC are derived from Solano County's inherent police powers.² The ALUC is listed on the County's website as a county special district, and is comprised in

¹ https://www.solanocounty.com/depts/rm/boardscommissions/solano_county_airport_land_use_commission/default.asp

² Even the SAA recognizes the police powers of a county and require counties to establish an ALUC for orderly development of the public airports in a county and the areas around the airports. (Pub. Util. Code, § 21670(b).)

part by members appointed by the Solano County Board of Supervisors.³ The ALUC and County share office space and staff (e.g., Director of Resource Management), and the County and ALUC are represented by the same County Counsel's office. Thus, while it may have some independence, the ALUC's powers in drafting and approving the LUCP are an extension of Solano County's police powers, and not separate powers of a wholly independent state agency.

Regardless of the specific legal structure of the ALUC, the DEIR evaluates aeronautical safety and noise issues, and concluded based on substantial evidence that this project, which replaces existing wind turbines, will not result in significant adverse impacts in these areas.

- L4-2 SMUD's Ability to Overrule an ALUC Determination of Inconsistency. The commenter notes that on pages 3.7-8 and 3.7-13, the DEIR states that SMUD may overrule an ALUC determination of inconsistency but does not explain how.

While SMUD believes that the ALUC consistency determination process does not apply to this project, as noted in response to comment L4-3 below, SMUD submitted an LUCP consistency determination application to Solano County ALUC for an advisory ruling. On May 20, 2021, the ALUC determined that the project was inconsistent with the LUCP. In accordance to the State Aeronautics Act (SAA) provisions, the SMUD Board of Directors is now proposing, after a noticed public hearing and consistent with evidence in the record before it, to overrule the ALUC determination after making the requisite findings under the SAA. SMUD's proposed decision and findings were circulated to the ALUC and the California Department of Transportation's Division of Aeronautics on July 2, 2021, i.e., at least 45 days prior to its decision to overrule the ALUC.

Please also refer to Downey Brand's letter dated April 26, 2019 in response to the Solano County ALUC comments on SMUD's NOP in Appendix C of this FEIR for additional information regarding SMUD's position on this issue.

- L4-3 Need for Clarification of ALUC's Role with Respect to the Project. The commenter states that even if SMUD has the authority to overrule the ALUC if specific factual findings are made, it would not excuse SMUD from submitting the project to the ALUC for a consistency determination. Accordingly, the commenter states that the list of responsible and trustee agencies in section 2.9.2 and table 2-4 of the DEIR should be corrected to identify the ALUC's role with respect to the project.

³ See footnote 1.

Please refer to the Master Response. The ALUC has been added to Table 2-4 of the DEIR as follows:

State		
Agency	Type of Permit	Purpose
State Water Resources Control Board	Clean Water Act Section 402, construction stormwater permit	Prevent discharge of construction-related pollutants to waters of the United States.
San Francisco Bay Regional Water Quality Control Board	Clean Water Act Section 401, water quality certification	Prevent the discharge of construction-related pollutants to waters of the United States.
California Department of Fish and Wildlife	Streambed alteration agreement	Allow the project to alter a bank or streambed located in California.
California Department of Transportation	Haul truck and overload permit	Permit oversize trucks to travel on local roadways.
<u>Solano County ALUC</u>	<u>ALUC consistency determination review is not required, but is advisory to SMUD</u>	<u>The consistency determination process is advisory only. On May 20, 2021, the ALUC determined that the project is inconsistent with the Travis Air Force Base Land Use Compatibility Plan (LUCP). SMUD Board of Directors is proposing to overrule the ALUC determination after a noticed public hearing, with the required number of votes of its Board members and after making the requisite findings under the State Aeronautics Act (SAA). The proposed decision and findings were circulated to the ALUC and the California Department of Transportation, Division of Aeronautics on July 2, 2021 as per the SAA process requirements.</u>

L4-4 Need for Determination of Whether Home Run Lines Qualify as Transmission Lines and Will be Installed Outside of Existing Rights-of-Way; Possible Need for a Discretionary Use Permit. The commenter notes that on page 3.9-2, the DEIR states that SMUD's wind turbines are exempt from County zoning and building ordinances pursuant to sections 53090 - 53097.5 of the Government Code. The commenter also notes that Chapter 2 of the DEIR describes the project as consisting of new turbines, new home run lines, and various other components. A

Services District, 37 Cal.App.5th 734 [July 19, 2019]) held that that lines connecting a generating facility to the grid are “transmission lines” for purposes of Government Code section 53091 (e). The commenter states that the DEIR is unclear as to whether the planned home run lines qualify as transmission lines as per the recent court decision, and whether they will be installed inside or outside of existing rights-of-way. The commenter points out that a Solano County Zoning Ordinance requires the approval of a discretionary use permit for the installation of utility lines outside of an existing right-of-way.

Government Code 53091 (e) states: “Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, or for the production or generation of electrical energy, facilities that are subject to Section 12808.5 of the Public Utilities Code, or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts. Zoning ordinances of a county or city shall apply to the location or construction of facilities for the storage or transmission of electrical energy by a local agency, if the zoning ordinances make provision for those facilities.” Storage and transmission facilities will not be located or constructed as part of the project. As described in Section 2.5.6 *Power Collection System* of the DEIR, the Solano 4 Wind Project’s power collection system would include the wind turbine generator (WTG) interties, underground cable, a step-up transformer, and associated protective switching. The power, which would leave each WTG transformer, would be interconnected with adjacent WTGs. These joined circuits would convey 34,500-volt power to the Russell Substation via new underground electrical cable in a trench within the “home run” alignment (DEIR Exhibit 2-7) and would require new easements. WTGs will be electrically combined into 4-6 generation feeder circuits (underground electrical cables) on a dedicated 34.5 kilovolt medium voltage collection system. No other utility loads, end-use customers, or other uses—outside of the WTG system—will be fed by these new generation collection system feeders. Additionally, the Solano 4 Wind Project generation feeder circuits will not be under the control of PG&E.

As part of the Solano 4 Wind Project, only underground 34.5 kilovolt, medium voltage, generator collection system feeders will be constructed. Per the PG&E⁴ glossary of terms, as well as the transmission system definitions provided by the California Public Utilities Commission (CPUC),⁵ these generation feeders circuits do not constitute electrical transmission facilities.

The *Hesperia* decision should not be read to render the exemption in Government Code 53091(e) inapplicable to the project. Public Utilities Code Section 12808.5 is referenced in Government Code Section 53091(f), and it

⁴ *Pacific Gas and Electric Glossary of Terms*:

<https://www.pge.com/includes/docs/pdfs/shared/customerservice/nonpgeutility/electrictransmission/handbook/glossary.pdf>

See Cal.P.U.C. General Order No. 131-D, § 1: <https://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF>

was adopted in parallel with the related amendments to Government Code Section 53091—see California Statutes 1977, Chapters 324 and 436. In fact, the two sections were adopted by numerically sequential Assembly Bills, 242 and 243 (1977). Both statutes use the term “transmission,” and Government Code Section 53091 uses it distinctly from “distribution,” seeming to evince a clear intent on the part of the Legislature to distinguish between the electrical industry term “transmission” and other electrical industry terms such as “distribution,” and thus to give a meaning to the term transmission that is not broadly encompassing of all movement of energy through any kind of conduit. The court hearing the appeal in the *Hesperia* case appears to have lacked that background and did not consider the legislative history of parallel amendments of Public Utilities Code Section 12808.5 and to Government Code Section 53091 in reaching its decision. The collection and home run lines are not intended to transmit energy from the project; they are intended to collect it to the project substation. Reading *Hesperia* to mean that the exemption does not apply to the project would render the exemption meaningless. Thus, the holding of *Hesperia* case is inapplicable here.

That said, if necessary, the SMUD Board of Directors has the authority to make transmission ordinances inapplicable to the project pursuant to qualified exemption under Government Code Section 53096 based on compliance with notice and hearing proceedings and finding there is no feasible alternative to the installation if there is no feasible alternative to the proposal.

As outlined in the *Hesperia* case, the finding of “no feasible alternative” implies that there is no alternative location for successfully accomplishing the project “within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (*City of Hesperia v. Lake Arrowhead Community Services Dist.* (2019) 37 Cal.App.5th 734, 762, quoting Government Code Section 53096(c).) The *Hesperia* court found further guidance for “feasibility” in application of the identical definition under the California Environmental Quality Act (CEQA). (*Id.*; see also CEQA Guidelines, § 15364; Pub. Resources Code, § 21061.1 [defining feasibility as “capable of being accomplished in a successful manner within a reasonable period of time taking into account economic, environmental, legal, social and technological factors.”].) The question of feasibility is not simply whether an alternative or mitigation measure is literally possible, but whether it is reasonable and practical in light of these and other factors. (*No Slo Transit, Inc. v. City of Long Beach* (1987) 197 Cal.App.3d 241, 256 [mitigation is infeasible if it is impractical].) Alternatives can also be rejected as infeasible if they conflict with certain overarching policies (e.g., a conflict with State’s Global Warming Solutions Act of 2006, or AB 32). A project alternative can be eliminated from consideration based on any one factor. Consequently, if an alternative is infeasible for noneconomic reasons, it can be rejected on that basis alone without having to evaluate other factors (including economics).

As discussed under Responses L2-23 and L2-27, the project consists of repowering wind turbines in a specified Wind Resource Area. With very few high-quality wind sites left in Northern California (or in the SMUD service and production territories), alternative sites are impractical and cost prohibitive. Moreover, regulatory restrictions and unavailability of land similarly hamper offsite alternatives. SMUD's Integrated Resource Plan (IRP) process guides decisions on future resource developments based on the need for new renewable and carbon-free resources to meet California's mandate on renewable procurement (2030, 60%) and to meet the directed energy production goals of SMUD's Board of Directors. SMUD's IRP, adopted by the Board of Directors in 2018, laid out a pathway to achieve a Net Zero greenhouse gas (GHG) emissions goal by 2040 through investment in electrification while significantly expanding renewable and carbon-free resources in SMUD's energy portfolio. In July 2020, the Board declared a climate emergency and adopted a resolution calling for SMUD to take significant and consequential actions to eliminate SMUD's greenhouse gas emissions by 2030 and directed staff to develop a plan to achieve this goal. The 2030 Zero Carbon Plan (2030 Plan) has been presented to the Board and calls for the addition of up to 2,300 MW of new renewables and 1,100 MW of batteries by 2030 – more than double the amount planned for in the 2018 IRP. The 2030 Plan calls for maximizing new cost-effective utility-scale renewables within SMUD's service territory (up to 1,500 MW utility solar), but also requires additional resources not available locally, such as wind and geothermal.

Resource diversity is coveted in resource planning and necessary for reliable operations, as it results in varying generation profiles, costs, and avoids over investing in one generation type that may result in diminishing returns. Wind generation, such as generation our proposed Solano 4 wind resource, is beneficial from a resource diversity perspective as it can provide more output during peak hours than solar generation, and typically becomes available as solar goes offline. In short, wind is an effective renewable complement to solar, and is a proven technology that can be planned for and pursued today.

Adding cost-effective renewable resources that complement the solar generation profile, are located relatively close to SMUD, and help ensure reliability will be imperative to achieving the goals of the 2030 Plan. Identifying and building enough resources in the next nine years will be a challenge, and Solano 4 Wind, as a known project on the only remaining land within the Wind Resource Area not already currently used for wind generation (or as to a portion of the project area, on land already dedicated to existing generation), and with existing infrastructure will go a long way to help meet the very aggressive GHG reduction goal. Thus, SMUD will have a factual basis for making the requisite Section 53096 feasibility findings.

Please also refer to the Master Response for SMUD's position as a lead agency for an energy generating project.

- L4-5 Required Process When Locating or Constructing Transmission or Distribution Lines. The commenter notes that section 12808.5 of the Public Utilities Code requires a municipal utility district to follow a specified process when locating or constructing transmission or distribution lines. The commenter states that the DEIR does not discuss this required process. As a result, the commenter states that the County is not able to assess whether it has land use jurisdiction over any elements of the project.

Section 12808.5 of the Public Utilities Code requires a municipal utility district to follow a specified process when locating or constructing transmission or distribution lines. As discussed above in Response L4-4, the collection lines and home run lines for Solano 4 are not transmission lines. Further, Section 12808.5 of the Public Utilities Code states that it does not apply to distribution lines conveying less than 100,000 volts. (Pub. Util. Code, § 12808.5(e)(2).) The collection lines and home run lines that will be sited and constructed as part of the project would convey only 34,500-volt power to the Russell Substation. Thus, even if the collection and home run lines could be characterized as distribution lines, the lines sited and constructed as part of the project are explicitly exempted from Section 12808.5 of the Public Utilities Code.

As stated in Response L4-4 above, the project will be comprised solely of underground 34.5 kilovolt, medium voltage, generator collection system feeders, which does not constitute electrical transmission facilities and absolute exemption under section 53091(e) is still applicable. Thus, holding of *Hesperia* case is inapplicable here. Master Response Land Use further discusses why local zoning ordinances do not apply to the project. That said, if necessary, the SMUD Board of Directors has the authority to adopt a qualified exemption under Government Code Section 53096 based on compliance with notice and hearing proceedings and finding there is no feasible alternative to the proposal.

- L4-6 Mitigation Measure Should Require a Mitigation Agreement. The commenter notes that the DEIR discusses the project's potential impacts on County roads in section 3.11. The commenter states that Mitigation Measure 3.11-2, requiring SMUD to make a good faith effort to enter into a mitigation agreement regarding the project's impacts to County roads, is not sufficient to achieve mitigation. Instead, the commenter requests that the recommended mitigation measure be revised to require the execution of a mitigation agreement before construction begins on the project.

Mitigation Measure 3.11-2 states that specific County roads affected by the project shall be returned to preconstruction conditions after construction. To avoid giving the impression that the mitigation is conditional, the words "good-faith effort" was deleted from Mitigation Measure 3.11-2. The revision to Mitigation Measure 3.11-2 is included in this FEIR. Please refer to section 3.4 Corrections and Revisions to the DEIR, and to the MMRP in Chapter 4.

- L4-7 Impacts of Taller Turbines on Travis Air Force Base Operations. The commenter states that Solano County is very concerned about impacts of taller wind turbines on the Travis Air Force Base (AFB) radar system and believes that they will exacerbate already identified impacts. The commenter notes that the County's General Plan identifies the importance of Travis AFB, not only to the County, but also to the region as a whole. The commenter recommends that that project not proceed until potential impacts to Travis AFB are fully addressed.

Please refer to Master Response 2. SMUD has been actively engaged in addressing these issues with Travis AFB since inception of the project. Travis AFB submitted its Solano 4 Wind Project Operational Risk Assessment to the Department of Defense (DOD) on January 11, 2021. SMUD received the requested extensions for the nineteen (19) Determinations of No Hazard (DNH) for the project on January 28, 2021, and a letter dated February 9, 2021 from Steven J. Sample, Executive Director, Military Aviation and Installation, Assurance Siting Clearinghouse stating that as a result of discussions between SMUD and the U.S. Air Force, the construction of the project, submitted to the FAA on April, 17, 2020, will not present an adverse impact to military operations (See FAA Determinations in Appendix B). Based on substantial evidence, including the evaluation and analysis of its own aeronautics' experts, SMUD has determined that there will be no significant safety or other impacts to Travis AFB arising from this project.

Letter 5**SHUTE, MIHALY
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September 6, 2019

Via Email and Federal ExpressAmmon Rice
Sacramento Municipal Utility District
Environmental Services
6201 S Street, MS H201
Sacramento, CA 95817
Ammon.Rice@smud.orgRe: Draft Environmental Impact Report for the Solano 4 Wind Project

Dear Mr. Rice:

On behalf of the Solano County Airport Land Use Commission ("ALUC"), we submit the following comments on the Sacramento Municipal Utility District's ("SMUD's") Draft Environmental Impact Report ("DEIR") for the Solano 4 Wind Project ("Project"). This letter follows up on, and incorporates herein by reference, our February 8, 2019 letter regarding SMUD's January 9, 2019 Notice of Preparation of an Environmental Impact Report ("NOP").

As set forth below, the DEIR fails to comply with numerous provisions of the California Environmental Quality Act ("CEQA"), Pub. Res. Code § 21000 et seq., and the regulations implementing CEQA, California Code of Regulations, Title 14, § 15000 et seq. ("CEQA Guidelines"). Specifically, the DEIR violates CEQA in that it does not: (1) adequately describe the Project or its environmental and regulatory setting; (2) adequately analyze the Project's relationship to the Travis Air Force Base Land Use Compatibility Plan ("LUCP"); (3) adequately analyze the Project's significant impacts; (4) adequately analyze the Project's cumulative impacts; (5) provide for adequate mitigation of the Project's significant impacts; and (6) evaluate a reasonable range of alternatives. SMUD must therefore revise and recirculate the DEIR in order to permit an adequate understanding of the issues at stake.

California's airport land use commissions are part of the broader framework of efforts around the country aimed at effectively ensuring compatible land

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use in the vicinity of airports. ALUC looks forward to working with SMUD to ensure the Project's safety and land use compatibility with respect to airports within ALUC's coverage area. In order to fulfill this critical mission, ALUC must follow the review provisions set forth in the State Aeronautics Act, Public Utilities Code §§ 21001 et seq. ("Act") and the LUCP. Thus, ALUC reiterates its position stated in our prior letter on the NOP: ALUC strenuously disagrees with SMUD's assertion that it is not required to obtain a consistency determination from ALUC for Project approval. This assertion runs directly counter to the express terms of the State Aeronautics Act. ALUC intends to vigorously enforce the provisions of the Act and the LUCP requiring that SMUD must seek such a consistency determination for the Project from ALUC.

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We submit with this letter a review of the DEIR by Dr. Jerry Johnson, Director of Engineering, Regulus-Group, LLC, Washington, DC. Dr. Johnson has extensive recognized experience and expertise in National Airspace System surveillance and navigation systems, including in assessing interference impacts from wind turbines on radar at airport facilities. Dr. Johnson's memorandum, along with his qualifications, are attached hereto as Exhibit 1 and incorporated in full by reference.

I. The DEIR Does Not Adequately Describe the Project or the Environmental Setting.

The environmental impact report is "the heart of CEQA." *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392 (citations omitted) (*Laurel Heights*). It "is an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return. The EIR is also intended 'to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.' Because the EIR must be certified or rejected by public officials, it is a document of accountability." *Id.* (citations omitted). Where, as here, an EIR fails to fully and accurately inform decision makers, and the public, of the environmental consequences of proposed actions, it does not satisfy the basic goals of the statute. *See* Pub. Res. Code § 21061 ("The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.").

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An "accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730, quoting *County of Inyo v. City of*

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L.A. (1977) 71 Cal.App.3d 185, 193. Such a description is “necessary for an intelligent evaluation of the potential environmental effects of a proposed activity.” Id., quoting McQueen v. Board of Directors (1988) 202 Cal.App.3d 1136, 1143. An inaccurate or incomplete project description may infect every subsequent section of the EIR and render the analysis of significant environmental impacts as well as feasible mitigation measures and alternatives inherently unreliable. Project descriptions that are internally inconsistent or incomplete are inadequate as a matter of law. Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 83, 89 (holding that an EIR was inadequate because its project description was “inconsistent and obscure” as to the extent of project activities).

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Further, CEQA and the CEQA Guidelines mandate that an EIR include a description of “the physical environmental conditions in the vicinity of the project . . . from both a local and a regional perspective . . . Knowledge of the regional setting is critical to the assessment of environmental impacts.” CEQA Guidelines § 15125(a) and (c). This requirement derives from the principle that without an adequate description of the project’s local and regional context, the EIR—and thus the decision-makers and the public who rely on the EIR—cannot accurately assess the potentially significant impacts of the proposed Project.

According to the DEIR, the Project would involve construction of up to 22 massive new wind turbine generators (“WTGs”)—up to 10 in Solano 4 East and up to 12 in Solano 4 West—as well as related transmission facilities. At up to 591 feet tall, the WTGs would be over 40 percent higher than any existing turbines in the area. Indeed they would be amongst the tallest anywhere in the Country. *See* FAA Digital Obstacle File website [at https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dof/]. The turbines would also have a maximum diameter of up to 492 feet. DEIR at 2-10.

The DEIR acknowledges that WTGs increase risks of aircraft collisions and radar signal interference (DEIR at 3.7-21), and further acknowledges that the Project is within the line of sight of 4 different radar facilities, including Travis Air Force Base (“Travis”) (DEIR at 3.7-14). *See also* State of California, Department of Transportation, Division of Aeronautics, California Airport Land Use Planning Handbook (Oct. 2011) [<https://dot.ca.gov/programs/aeronautics/airport-land-use-planning>] (“Handbook”) at 4-39 (“[W]ind-turbine farms have been known to interfere with air traffic control (ATC) or military air defense radar.”). Thus, California policy counsels that “Airport land use compatibility should be one of the factors considered in the appropriate placement of these facilities.” Handbook at 4-40.

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Despite these acknowledged and obvious risks, the DEIR fails to provide relevant information about the Project and the environmental and regulatory setting so that a reader could assess such compatibility. The Project description is inaccurate, incomplete, inconsistent, and/or misleading in four ways. First, the DEIR states the model and final location of the WTGs will not be selected until a later date. DEIR at 2-10. However, to determine a turbine project's individual and cumulative impacts on radar, precise information such as location, height, blade size, and reflectivity need to be known. Also, the position of the turbines relative to one another is critical to assessing impacts.

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Second, the DEIR states that "The FAA conducted an aeronautical study of the proposed project . . ." DEIR at 3.7-8. Likewise, the DEIR says that "The FAA has conducted an independent evaluation of the Solano 4 Wind Project . . ." DEIR at p. 3.7-22. Those DEIR statements are misleading. The Project Description says it involves "22 new WTGs" while instead FAA reviewed only 19 proposed turbines. The DEIR's project description is unstable, inaccurate, and incomplete as it (1) is inconsistent as to whether the 19 turbines will comport with the specifications examined in the FAA determinations or are yet to be determined as elsewhere stated in the DEIR, and (2) gives no information whatever about the additional 3 turbines.

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Moreover, the DEIR is incomplete because it attached (as Appendix F) only *one* of the FAA's determinations, which applies directly to only *one* proposed structure that was proposed to be located precisely at Latitude 38-07-54.16N NAD 83 and Longitude 121-46-31.47W. The FAA determination itself says that "This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above." Since the DEIR purports to rely entirely on the FAA determinations in its analysis of the Project's 22 proposed WTGs, the DEIR is inadequate as an informational document for failure to include FAA determinations concerning any turbines beyond that single turbine at that one specified location.

5-5

Third, the DEIR's failure to precisely identify which WTGs will be constructed and where is further reflected in the DEIR's shifting Project objective for megawatt (MW) output, which in turn impacts the DEIR's analysis of alternatives. On August 22, 2019, SMUD altered the Executive Summary to the previously circulated DEIR by, among other things, changing the project objective from producing 92 MW to producing 91 MW. (SMUD sent out notices of that change by ordinary mail, without changing the September 6 date for comments.) Meanwhile the DEIR's identification of the environmentally superior alternative is based on 92 MW. DEIR at 6-12. Further, the

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DEIR excludes alternatives from detailed consideration on the basis of not meeting project objectives. The DEIR's statement of objectives is not stable and consistent, and the reviewing public cannot tell from the DEIR if there may be an appropriate alternative that would meet the 91 MW objective but was excluded from consideration on the basis of the statement that the objective was 92 MW. The DEIR must be corrected and recirculated with a proper alternatives analysis due to the shifting nature of the project objectives. Moreover, as discussed further below, this discrepancy is a further indication that the DEIR has defined its project objectives narrowly to preclude consideration of reasonable alternatives, conforming the statement of objectives around the proposed Project's details, rather than properly examining alternatives in light of the Project's bona fide objectives.

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Fourth, the Project description is unstable and/or the cumulative impacts analysis is improper because the DEIR hints that later actions may be incorporated into the overall project, but does not specify if those actions would or should be included within this Project. DEIR at 2-26. On the one hand, the DEIR talks about "SMUD's overall Solano Wind Project" as if SMUD views it as one thing. DEIR at 2-5. "With a total of 107 WTGs ranging in size from 660 kilowatts (kW) to 3.0 MW, the overall Solano Wind Project currently has a total site rated capacity of 230 MW." DEIR at 2-6. And the DEIR also states that "SMUD is committed to long-term generation of renewable energy in the WRA. At the end of this project's operational life, SMUD would likely repower the Solano 4 Wind Project using current industry technology, or would remove the turbines and restore the project to conform with the surrounding land use." DEIR at 2-6. CEQA requires that an EIR "include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects." *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 398.

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As is common knowledge, and as is patently demonstrated by this phase 4 of the Solano Wind Project, the trend over time in commercial-scale turbine technology is toward larger and larger turbines. The DEIR in effect appears to take the position that it is reasonably foreseeable as part of "SMUD's overall Solano Wind Project" that SMUD will demolish these Phase 4 turbines and install even taller turbines. Yet there is no analysis of any impact of those even bigger turbines, nor even any description of them. For example, how tall will they be? Based on SMUD's saying in the DEIR that "SMUD is committed to long-term generation of renewable energy in the WRA," this defect in the DEIR extends not only to the DEIR's failure to describe and analyze future turbines to replace

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Phase 4, but also with respect to the 107 turbines in Phase 1 through 3. DEIR at 2-5. The DEIR says that the maximum height of turbines in those three phases is 410 feet. DEIR at p. 2-5. The Phase 4 proposal is for turbines of 591 feet. DEIR at 2-10. If Phases 1 through 3 were replaced with turbines of Phase 4's proposed height that would be 107 more turbines of 591 feet, each at least 181 feet taller than what exists presently. The DEIR gives no indication of the impacts of that. If, as the DEIR says, those would instead be replaced in the future "using current industry technology" (i.e., the largest conceivable turbine technology then available on the market at that unspecified future time), the DEIR is further defective for failing to describe that aspect of the "overall Solano Wind Project," identify its impacts, and analyze those impacts. Whether viewed as a defect in the DEIR's project description or cumulative impacts analysis, either way the DEIR needs to be recirculated to provide an opportunity for public comment on these issues.

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The DEIR likewise fails to disclose necessary information about the environmental setting, including what type of radar equipment is currently being used at the four airport facilities in the Project vicinity, and for what purpose, as well as the relevant attributes of that equipment. It also fails to reveal the number and types of aircraft that fly in the affected airspace, as well as where and when they fly, and for what purpose. Without providing such pertinent information, it is impossible to assess the Project's impacts upon any of those facilities, any plans that area airports may have for orderly expansion consistent with the State Aeronautics Act, and the need to protect people on the ground from the added risks that come with projects of this type, not to mention air safety and the LUCP. As discussed in detail below, the DEIR also fails to accurately describe the regulatory setting, including the role of the State Aeronautics Act, ALUC, and the LUCP. The DEIR is therefore inadequate and must be corrected and recirculated with adequate Project description and setting information.

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II. The DEIR Does Not Properly Analyze the Project's Relationship to the Travis Air Force Base LUCP.

As the DEIR recognizes, CEQA requires that environmental impact reports analyze the consistency of a project with applicable local plans. *See Napa Citizens for Honest Govt. v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 386-87; CEQA Guidelines Appendix G, § XI(b); *see also* DEIR at 3.9-4 (adopting Appendix G threshold of significance). Inconsistencies with a general plan or other local plan goals and policies that were enacted in order to protect the environment are significant impacts in and of themselves and can also be evidence of other significant impacts. *See id.*; *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 929.

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As stated in our comments on the NOP, the Solano County ALUC exists to protect public health, safety, and welfare by ensuring compatible land uses within the vicinity of the County's airports. Pub. Util. Code § 21670. To that end, the State Legislature has empowered ALUC to develop land use compatibility criteria and to ensure that local agency actions conform to those criteria. Pub. Util. Code §§ 21674 – 21676.5. "In formulating an airport land use compatibility plan, the commission may develop height restrictions on buildings, specify use of land, and determine building standards, including soundproofing adjacent to airports, within the airport influence area." Pub. Util. Code, § 21675(a).

In 2015, ALUC adopted the current iteration of the Travis LUCP to define land use compatibility criteria within the Base's airport influence area ("AIA"). Thus, the DEIR must fully analyze the Project's relationship to the LUCP and identify any feasible mitigation measures to lessen or avoid any inconsistencies. Here, the DEIR's analysis of the Project's consistency with the LUCP is fundamentally flawed.

Because wind turbines—especially those of the Project's size—can generate air traffic control radar interference, rotor turbulence, and vertical obstruction hazards, section 5.6.1 of the Travis LUCP requires that all new and replacement turbines in the County *that are greater than 100 feet in height* AGL "shall be referred to the ALUC for a consistency determination." Travis Air Force Base LUCP, § 5.6.1. The proposed Project's turbines would be up to 591 feet. As the DEIR recognizes, the Project site is in Zone 4 of the LUCP. DEIR at 3.9-6. The DEIR, however, dismisses potential plan inconsistencies and impacts based on three erroneous assumptions. DEIR at 3.9-6, 3.7-11. Because, as set forth below, each of the DEIR's assumptions are wrong as a matter of law, the DEIR's ultimate conclusion that the Project would have no significant land use impacts and thus "[n]o mitigation measures are required" (DEIR at 3.9-7) is unsupportable. The DEIR must be revised and recirculated to address this error.

A. Neither the FAA's Regulations Nor Its Determination of No Hazard Finding Preempt ALUC's Travis Air Force Base LUCP.

First, the DEIR asserts that there is no potential issue to address with respect to the LUCP because "the FAA has issued a Determination of No Hazard Finding for the Solano 4 Wind Project, and FAA and its regulations concerning air safety and aviation navigation preempt the ALUC's land use regulations regarding radar system interference." DEIR at 3.9-6; *see also* DEIR at 3.7-22 (similarly claiming preemption regarding air safety impacts). The DEIR cites no express preemption provision (nor could it) and thus apparently relies on implied preemption (either "conflict" or "field" preemption). However, there is no such implied preemption. Rather, the overwhelming

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federal and state authorities demonstrate that the FAA does not have authority over local land use decisions, including those aimed to ensure compatibility with airports, and that such decisions are left in the hands of local authorities such as ALUC.

Notably, the FAA itself espouses this view in general as well as in this particular case. As the FAA's Order that sets forth that agency's "Procedures for Handling Airspace Matters" explains:

The FAA's authority to promote the safe and efficient use of the navigable airspace, whether concerning existing or proposed structures, is predominantly derived from Title 49 U.S.C. Section 44718 (Section 44718). It should be noted however, that *Section 44718 does not provide specific authority for the FAA to regulate or control how land (real property) may be used in regard to structures that may penetrate navigable airspace.*

FAA Order JO 7400.2M (February 28, 2019) § 5-1-2a (emphases added); *see also* Handbook at 3-28 (stating same).

Thus, "[o]nce issued, a hazard/no-hazard determination has no enforceable legal effect. The FAA is not empowered to prohibit or limit proposed construction it deems dangerous to air navigation." *Aircraft Owners & Pilots Ass'n v. FAA* (D.C. Cir. 1979) 600 F.2d 965, 966 n. 2; *see also* Handbook at 5-11. Such land use authority is left in the hands of local governments. *See Gustafson v. City of Lake Angelus* (6th Cir. 1996) 76 F.3d 778, 784 ("The FAA has acknowledged that land use matters within the federal aviation framework are intrinsically local."); Handbook at 3-11 ("The FAA has no authority over off-airport land uses—its role is with regard to the safety of aircraft operations... State and local agencies are free to set more stringent land use compatibility policies.").

Moreover, the FAA's Determination of No Hazard Finding ("NHD") for the Project's wind turbines included in Appendix G to the DEIR reaffirms this principal with respect to the instant Project in particular. It expressly states that it "does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State or local government body."

A recent decision from the Iowa Supreme Court addressing a situation analogous to the present one provides a case in point. *Carroll Airport Commission v.*

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Danner (2019) 927 N.W.2d 635. After a detailed survey of the federal and state cases on this issue, *Carroll* upheld injunctive relief granted to an airport land use commission to tear down a grain “leg” (bucket elevator) that was constructed in a flight path without the proper approvals from the commission. *Id.* at 648-53. The farmer claimed, as does the DEIR here, that the commission’s approval process was preempted by the FAA and that the FAA’s no-hazard determination regarding the structure was conclusive. *Id.* at 641. Notably, the no-hazard determination for the structure there contained language identical to that used for the Project here, stating that it “does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.” *Id.*

The court explained its reasoning for rejecting preemption as follows:

On balance, we decline to hold the FAA no-hazard determination preempted enforcement of local zoning requirements. We reiterate that “[t]here is a presumption against preemption.” *Huck*, 850 N.W.2d at 363 (alteration in original) (quoting *Ackerman*, 586 N.W.2d at 213). Federal courts recognize that the FAA’s “hazard/no-hazard determination has no enforceable legal effect” and “[t]he FAA is not empowered to prohibit or limit proposed construction it deems dangerous to air navigation.” *Aircraft Owners & Pilots Ass’n*, 600 F.2d at 966–67. Accordingly, that role must fall to state and local government, indicating Congress left room for “cooperative federalism.” *See Freeman*, 848 N.W.2d at 83. In our view, the better reasoned authorities discussed above hold state and local regulators can impose stricter height restrictions on structures in flight paths notwithstanding an FAA no-hazard determination. Finally, we rely on the very language of this specific no-hazard determination, which expressly warned the Danners that they still must comply with state and local laws.

Id. at 653. The rationale provided in *Carroll* applies with equal force here.

It is also consistent with the guidance provided by the California Department of Transportation, which is the state agency that oversees implementation of the State Aeronautics Act. *See Handbook* at 3-33 (“[A]n FAA DNH [determination of no hazard] is not a determination that no airport land use compatibility issues exist, and an ALUC may find a project incompatible for other reasons, regardless of the issuance of a DNH.”); *see also id.* at 3-48 & *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2008) 164 Cal. App. 4th 1, 12 (“*Muzzy Ranch II*”) (explaining differences between ALUC

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compatibility review for military airports and other standards); *Sierra Pacific Holdings, Inc. v. County of Ventura* (2012) 204 Cal.App.4th 509 (FAA safety standards do not preempt state tort law regarding obstructions near airport runway). There is no federal preemption of ALUC's review of the Project.

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B. The LUCP Provisions Apply to SMUD.

Next, the DEIR claims that there is no issue here because “the LUCP provisions do not apply to SMUD WTG facilities under section 53091 of the Government Code (Subdivisions d and e).” DEIR at 3.9-6; *see also* DEIR at 3.7-13, 3.7-22 (concluding same with respect to the Project's air safety impacts). The DEIR's conclusions in this regard conflict with the express provisions of state law, as explained in our January 9th letter on the NOP. By failing to acknowledge that the ALUC review requirements of the Act apply to the Project, the DEIR misleads the public. To ensure that the public—and SMUD decisionmakers—have a full and accurate understanding of the Project and the regulatory process governing its approval, the DEIR must be revised and recirculated to accurately set forth the regulatory setting. Because SMUD failed to do so in the DEIR, we provide that description here.

To begin, the Act broadly empowers ALUC to review the plans, regulations, and actions of local agencies to ensure compatibility with the appropriate LUCP. In granting this authority, the Legislature made clear that ALUC's jurisdiction reaches beyond cities and counties to include special districts and other local agencies such as SMUD. Indeed, the Legislature specifically amended the Act in 2000 to remove any doubt on this point, providing that “special districts, school districts, and community college districts are included *among* the local agencies that are subject to” ALUC review. Pub. Util. Code § 21670(f) (emphasis added); *see also* Senate Floor Bill Analysis for SB 1350 (August 2000) at ¶ 27 (rejecting the Napa Sanitation District's assertion that it was not subject to ALUC authority).

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Municipal utility districts such as SMUD are organized under the laws of the State to provide “governmental, or at least quasi-governmental,” services to regional service territories. *Sacramento Mun. Util. Dist. v. County of Sonoma* (1991) 235 Cal. App. 3d 726, 733. SMUD is therefore plainly “among the local agencies” that are subject to ALUC review under the Act. *See* Pub. Util. Code § 21670(f). Thus, without an explicit statutory exemption, SMUD must comply with ALUC's review procedures.

The DEIR asserts that Government Code section 53091 provides such an exemption. It does not.

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Government Code section 53091 reads, in relevant part, as follows:

(a) Each local agency shall comply with all applicable building ordinances and zoning ordinances of the county or city in which the territory of the local agency is situated.

...

(d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.

(e) Zoning ordinances of **a county or city** shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, or for the production or generation of electrical energy, facilities that are subject to Section 12808.5 of the Public Utilities Code, or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts. Zoning ordinances of a county or city shall apply to the location or construction of facilities for the storage or transmission of electrical energy by a local agency, if the zoning ordinances make provision for those facilities.

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This statutory provision does not exempt SMUD from compliance with the LUCP. On its face, Government Code section 53091 pertains only to “applicable building ordinances and zoning ordinances of [a] county or city.” As a matter of law, ALUC is neither a county nor a city. Instead, it is an independent governmental entity empowered and entrusted by the Legislature to implement and safeguard the Act’s important public purposes. *See, e.g.,* Pub. Util. Code § 21674; *Muzzy Ranch Co. v. ALUC* (2007) 41 Cal.4th 372, 384-85 (Pursuant to the Act and Government Code, “an airport land use compatibility plan can operate like a multijurisdictional general plan to trump the land use planning authority that affected jurisdictions might otherwise exercise through general and specific plans or zoning.”). Accordingly, under the plain terms of the statute, the exemption set forth in section 53091(e) does not apply to ALUC’s LUCP.

In short, under the plain language of the statute, SMUD cannot rely on section 53091 for an exemption from ALUC review.

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C. SMUD Does Not Have the Authority to Overrule ALUC, Nor Would Such Authority Obviate the Need for CEQA Review.

The final reason the DEIR gives for ignoring CEQA's requirement to analyze the Project's relationship to the LUCP is that "SMUD, as a local agency, can overrule the ALUC determination consistent with the State Aeronautics Act." DEIR at 3.9-6; *see also* DEIR at 3.7-8, 3.7-13, 3.7-22 (citing Pub. Util. Code §§ 21674.7, 21676 and 21676.5). In other words, the DEIR claims that because SMUD can allegedly "overrule" any determination ultimately made by ALUC, SMUD can skip ALUC's review procedures. The DEIR also asserts that, as a result, it need not analyze or mitigate any potential land use inconsistency with the LUCP. The DEIR is wrong on both counts.

First, as with ALUC, SMUD is not a city or a county and thus it does not possess the power the Legislature granted to cities and counties—and *only* to cities and counties—to overrule certain ALUC determinations. *See* Pub. Util. Code § 21676 (granting certain override powers to cities and counties by virtue of their power to adopt and amend general plans); § 21676.5 (same); *see also Pac. Gas & Elec. Co. v. Sacramento Mun. Util. Dist.*, 92 F.2d 365, 366 (1937) (noting that "[SMUD] is not coterminous with any county or municipality."). By virtue of their independent land-use planning authority, cities and counties possess unique discretion to determine whether their land-use plans conform to the ALUC's compatibility criteria. Pub. Util. Code §§ 21676(a), 21676.5. SMUD, by contrast, does not possess independent land-use planning authority to create a general plan and thus cannot avail itself of the powers the Act grants to cities and counties. Thus, the plain language of the Public Utilities Code does not give SMUD the authority to overrule ALUC or the LUCP.

Second, even if SMUD did have the power to overrule ALUC—which it does not—the DEIR may not assume that such an override is a foregone conclusion and on that basis ignore the Project's potentially significant land use impacts. The override provisions in the Act that the DEIR cites require a certain procedure to be followed before an override could take effect. *See* Pub. Util. Code §§ 21676 and 21676.5. This procedure would begin with ALUC completing its consistency review, and then the local agency approving an override only upon a two-thirds vote and making certain findings. *Id.* Thus, as the California Supreme Court has held, "even in the event a local authority invokes the override provision, the State Aeronautics Act scheme still controls." *Muzzy Ranch*, 41 Cal.4th at 384. Furthermore, under CEQA, an agency may make any override findings only *after* a full and complete environmental review. *See* CEQA Guidelines § 15093. Thus, even if SMUD's Board could ultimately override ALUC's determination (and it cannot), SMUD must still submit its Project to ALUC for a consistency determination. And likewise the DEIR must still disclose the Project's relationship to the

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LUCP and the significance of any inconsistencies, and evaluate all feasible mitigation measures to lessen such impact.

One unfortunate overall impression this DEIR creates on SMUD's behalf is that SMUD hopes to turn a blind eye to all local considerations and criteria, wishes ultimately to disregard them, and plans instead to proceed unilaterally on nothing more than its own fiat. Meanwhile, Travis Air Force Base: is the largest single employer in Solano County, accounting for nearly 10 percent of the county's total jobs; is responsible for vital strategic airlift and air refueling missions circling the globe; is the West Coast terminal for aeromedical evacuation aircraft returning sick or injured patients from the Pacific area; and regularly undertakes humanitarian response efforts around the globe, such as to areas devastated by hurricanes and earthquakes.¹

In sum, SMUD must revise and recirculate the DEIR to include an adequate analysis of the Project's land use impacts, including its relationship to the LUCP, and must consider all feasible mitigation measures to lessen such impacts, including but not limited to the measures discussed below.

III. The DEIR Fails To Adequately Analyze or Mitigate the Project's Significant Impacts.

The DEIR begins with the following critical statement regarding the Project's potentially significant safety hazard to air traffic:

The project site lies within the planning boundary of the Travis AFB LUCP, which contains policies designed to promote land use compatibility with airport operations. Placement of WTGs have the potential to intrude into navigable airspace, thereby increasing the

¹ Solano County General Plan, at pp. ED-4 to ED-5.60th Air Mobility Wing Fact Sheet (Feb. 12, 2016) [at <http://www.travis.af.mil/About-Us/Fact-Sheets/Display/Article/855903/60th-air-mobility-wing/>]; 2nd Lt. Sarah Johnson, *Doing the good thing': Travis aids mission to improve education in Haiti* (Nov. 28, 2017) [at <http://www.jbcharleston.jb.mil/News/Article/1382960/doing-the-good-thing-travis-aids-mission-to-improve-education-in-haiti/>]; Master Sgt. Joseph Swafford, *BEEliners bring humanitarian aid to St. Croix* (Sept. 26, 2017) [at <http://www.travis.af.mil/News/Article/1325298/beeliners-bring-humanitarian-aid-to-st-croix/>]; Taylor Buley, *Solano airmen, humanitarian heroes, at Travis Air Force Base* (Sept. 25, 2017) at p. A1 [at <https://www.dailyrepublic.com/solano-news/vacaville/solano-airmen-humanitarian-heroes-at-travis-air-force-base/>].

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risk of aircraft collision, or causing interference with radar signals used by air traffic control. Therefore, this impact would be **potentially significant**.

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Cont'd

DEIR at 3.7-21 (emphasis in original). The “analysis” that follows this statement, however, is woefully inadequate.

After admitting that the Project would “increas[e] the risk of aircraft collision” and “caus[e] interference with radar signals,” the DEIR then proceeds to dismiss these grave impacts with a series of deflections.

First, as with the Project’s land use impacts, the DEIR tries to avoid a deeper analysis of this potentially significant impact by claiming SMUD is either exempt from or can override the LUCP. DEIR at 3.7-22. As explained in detail above, this premise is legally faulty. *See supra* Part II.2 & 3. Equally important, even if SMUD were exempt from ALUC review (which it is not), it does not logically follow that the identified potentially significant impact, which is based on physical conditions not legal constructs, somehow disappears. Rather, CEQA dictates that the DEIR must analyze the actual environmental impact, regardless of the legal status of the Project’s review. *See, e.g., Communities for a Better Environment v. S. Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 320-21.

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CEQA requires an EIR to “include[] sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises.” *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 510. Furthermore, the DEIR must adequately discuss the nature of, and analyze, the Project’s impacts, not just baldly conclude that an impact may be potentially significant. *Id.* at 514 (“[T]he adequacy of an EIR’s discussion of environmental impacts is an issue distinct from the extent to which the agency is correct in its determination whether the impacts are significant. ‘An EIR’s designation of a particular adverse environmental effect as ‘significant’ does not excuse the EIR’s failure to reasonably describe the nature and magnitude of the adverse effect.’”) Therefore, the EIR must explain the *nature* and *extent* of the increased risks for aircraft collision and radar interference in a manner calculated for the public to understand. Furthermore, it must set forth standards for determining how much of an increased risk and interference would be considered a significant impact under CEQA and why. When it comes to potential loss of human life and military readiness, is any such increase acceptable? The purpose of CEQA is to disclose such issues so that the public and decision-makers may be adequately informed of the consequences of their decisions.

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Instead of undertaking this necessary analysis, the DEIR relies entirely on the FAA's NHD, asserting that document "described and dismissed" the air safety concerns raised by ALUC. DEIR at 3.7-22. This approach is unsupported, both factually and legally. To begin, the NHD did not "dismiss" ALUC's concerns. Instead, it concluded that the wind turbines would be within the line of sight of Travis, as well as three additional facilities, and "will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines." NHD at 5. The NHD ultimately concludes that such adverse effects are not unacceptable under **FAA standards** based on an evaluation of factors that are "not published for public use and are not circulated for public comment." *Id.* at 6 (emphasis added).

Critically, the NHD is clear that it does not purport to satisfy anything other than the FAA's limited criteria.² Rather, as noted, the Determination explicitly requires the applicant to comply with "any law, ordinance, or regulation of any Federal, State, or local government body." *Id.* at 3; *see also id.* at 5 (noting that ALUC's comments were not necessarily considered an "'objection' but rather statements," some of which "are simply repeating applicable law/rule/orders.>"). Therefore, the NHD's ultimate conclusions are both (1) based on the understanding that the applicant would be separately complying with the LUCP and CEQA; and (2) not intended to be, and in fact are not, based on a CEQA-compliant analysis that is sufficient as a public informational document.

Indeed, the NHD does not even purport to review the entire proposed Project. As discussed above, the "Solano 4 Wind Project" is for 22 proposed WTGs, the final model and placement of which has not been determined. Yet, the NHD considered 19 specific proposed structures in specific locations with specific heights. The DEIR provides no assurances that the final Project will align with what the FAA reviewed. Moreover, as to the 3 turbines beyond the 19 reviewed by the FAA, the DEIR's analysis under Impact 3.7-3 appears to be based upon nothing whatsoever.

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² For example, to the extent that the FAA received input from the military on the No Hazard Determination, such input would be limited to commenting on whether the Project would have an "adverse impact on military operations and readiness." To qualify as having an "adverse impact" for military purposes, the impact must be "demonstrable and [] likely to impair or degrade the ability of the armed forces to perform their warfighting missions." 10 U.S.C. § 183a(h)(1); 49 U.S.C. § 44718(h)(1).

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CEQA requires that an EIR evaluate the whole Project’s potentially significant environmental impacts, which is far broader in scope than an air “hazard” as defined and considered by the FAA. *Compare, e.g.,* Cal. Pub. Resources Code §§ 21002.1, 21060.5 with 14 C.F.R. § 77.17; *see also* *Town of Barnstable v. FAA* (2014) 408 U.S.App.D.C. 150, 161 (FAA determination insufficient to complete a proper environmental analysis under NEPA). Furthermore, CEQA case law makes clear that an EIR may not simply rely on compliance with certain regulatory standards to avoid an analysis of a Project’s potentially significant impacts. *See, e.g., Californians for Alternatives to Toxics v. Dept. of Food & Agriculture* (2005) 136 Cal.App.4th 1, 15-20 (reliance on safety regulations “is inadequate to address environmental concerns under CEQA”); *E. Sacramento Partnerships for a Livable City v. City of Sacramento* (2016) 5 Cal.App.5th 281, 302-03 (agency improperly used city’s general plan standard as sole threshold to avoid finding significant traffic impacts).

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As set forth in further detail in the report by Dr. Johnson of the Regulus Group (Exhibit 1), it is clear that even current SMUD WTG operations have resulted in impacts. In order to assess whether the addition of even larger and taller WTGs would result in significant impacts, the DEIR would need to provide far more information that it currently does. For example, the DEIR would need to include an adequate assessment of (1) the increase in ATC Minimum Vectoring Altitudes (MVA) for the area of the WTGs; (2) objective metrics for radar interference; (3) clutter and dual tracks; and (4) workload for operator engagement with aircraft because of clutter. *See* Exhibit 1. Without providing information on these topics, the DEIR fails as an informational document and fails to provide substantial evidence to support its determination that the Project will result in insignificant air safety impacts.

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Once the DEIR adequately evaluates the Project’s significant air safety impacts, it must evaluate all potentially feasible mitigation measures and feasible alternatives to lessen or avoid such impacts. Pub. Res. Code § 21002; CEQA Guidelines §15126.4. Currently, the DEIR relies only upon the NHD’s suggested mitigation to “mark and light wind turbine generators during construction” (Mitigation Measure 3.7-3) and then determines, without further analysis, that “implementing this mitigation measure would reduce the impact of hazards to aviation *during construction* to a less-than-significant level.” DEIR at 3.7-23 (emphasis added). This is inadequate under CEQA for at least two reasons.

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First, Measure 3.7-3 only purports to alleviate *construction* impacts. It does not address impacts related to the wind turbines *operation* at all. It also does not address

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the fact that the structures themselves (even in the daytime) can result in radar interference. *See* Exhibit 1.

CEQA requires much more. The DEIR must consider all potentially feasible mitigation to avoid operational impacts. For example, the DEIR acknowledges, but fails to further consider, the DOD's "continued efforts to develop new strategies to identify mitigation solutions to radar interference issues, including development of new radar technology." DEIR at 3.7-13.

One obvious ongoing such effort that the DEIR inexplicably fails to consider is the Wind Turbine Radar Interference Mitigation (WTRIM) pilot mitigation program being conducted at the very airbase most likely to be impacted by the Project—Travis Air Force Base. As detailed in Dr. Johnson's memorandum, this pilot project is studying how small low-cost in-fill radar systems might be used to mitigate wind turbine radar interference. *See* Exhibit 1. The study is nearing completion and clearly has the potential to mitigate any significant impacts from the Project on radar systems. *Id.* Furthermore, another mitigation effort underway is to develop radar processing algorithms that may reduce clutter seen on the ATC screens. *Id.*

The DEIR must consider all such mitigation solutions to determine if they could feasibly be implemented in conjunction with the Project. This could include, *inter alia*: (1) SMUD contributing its fair share to such solutions, and/or (2) SMUD agreeing to schedule Project construction in tandem with the implementation of new radar technologies. The DEIR must also consider any feasible alternate configurations for the wind turbines that would lessen air safety impacts, including moving WTGs from the line of sight. *Id.*

Second, even with respect to construction impacts, it is impossible to know whether Measure 3.7-3 would actually reduce impacts to a less-than-significant level because the DEIR fails to adequately reveal the nature and extent of the Project's construction impacts. Nor does the DEIR reveal how much the impact would be lessened by implementation of the mitigation. "CEQA EIR requirements are not satisfied by saying an environmental impact is something less than some previously unknown amount." *Ukiah Citizens for Safety First v. City of Ukiah* (2016) 248 Cal.App.4th 256, 264 (citation omitted).

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IV. The DEIR Fails To Adequately Analyze or Mitigate the Project's Significant Cumulative Impacts.

As the DEIR acknowledges, CEQA requires the lead agency to analyze and mitigate a Project's potentially significant cumulative impacts. CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Guidelines § 15355; *see also Communities for a Better Env't v. Cal. Res. Agency*, 103 Cal.App.4th at 120. An effect is "cumulatively considerable" when the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Guidelines § 15065(a)(3). A proper cumulative impact analysis is "absolutely critical," *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1217, as it is a mechanism for controlling "the piecemeal approval of several projects that, taken together, could overwhelm the natural environment," *Las Virgenes Homeowners Fed'n, Inc. v. County of Los Angeles* (1986) 177 Cal.App.3d 300, 306.

As explained by Dr. Johnson, utility scale turbines impact primary surveillance radar systems when the turbines are located within the line of sight of radar, and prior turbine projects in the area have already created an impact. *See* Exhibit 1. Yet, instead of actually analyzing this impact, the DEIR disposes of this significant cumulative risk in one conclusory paragraph. *See* DEIR at 4-12.

This paragraph, however, contains no actual analysis of the impact. Instead, it relies entirely on the FAA's NHD: "Regarding impacts on air traffic, the FAA concluded that the cumulative impact of the proposed WTGs, when combined with other proposed and existing structures, is not considered to be significant." *Id.* However, neither the DEIR nor the NHD provides any facts or discussion that demonstrate the latter document evaluated cumulative impacts in the manner required by CEQA. For example, the NHD does not reveal which other projects it considered in its cumulative analysis, and does not purport to use either of the methods prescribed by CEQA Guidelines section 15130. Further, as discussed above, the NHD looks only at cumulative impacts in the context of the FAA's standards, which do not purport to align with CEQA's definition of cumulative impacts or its requirements for a cumulative impacts analysis under California state law. Thus, the DEIR must undertake or present an independent evaluation of the Project's significant cumulative air safety impacts that complies with CEQA. The DEIR cannot attempt to get by on just bare conclusions, nor on an assumption that the FAA NHD, without needing to or meaning to, evaluated such impacts in a way that would conform to CEQA's standards.

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V. The DEIR Fails to Adequately Evaluate Alternatives to Lessen or Avoid the Project's Significant Impacts.

Under CEQA, a proper analysis of alternatives is essential to comply with the Act's mandate that significant environmental damage be avoided or substantially lessened where feasible. Pub. Res. Code § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443-45. As stated in *Laurel Heights I*, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d at 404.

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Critically, an EIR must consider a "reasonable range" of alternatives "that will foster informed decision-making and public participation." CEQA Guidelines § 15126.6(a) (emphasis added); *Laurel Heights I*, 47 Cal.3d at 404 ("An EIR's discussion of alternatives must contain analysis sufficient to allow informed decision-making."). The discussion of alternatives must focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. CEQA Guidelines § 15126.6(b). The DEIR for the Project fails to heed these basic mandates.

After presenting CEQA's required "no project" alternative, the DEIR offers only *one* project alternative (the "Reduced Turbine Height Alternative"), which would involve placement of 27 WTGs in a configuration similar to that of the proposed project. DEIR at 6-4 to 6-10. However, the DEIR claims that, except with respect to aesthetic impacts, the Reduced Turbine Height Alternative would result in similar or *greater* environmental impacts than the Project. *See* DEIR at 6-11. For example, with respect to air safety impacts, the DEIR states: "The Reduced Turbine Height Alternative would introduce structures that exceed the 200 foot threshold. . . . The placement of more WTGs on the project site may increase radar interference compared to the proposed project as the density of WTGs is greater than for the project. Overall, the Reduced Turbine Height Alternative may result in greater hazards or hazardous materials impacts compared to the project. (Greater)." DEIR at 6-10.

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While there is no "magic number" for how many alternatives an EIR should examine to present a "reasonable range," at a minimum CEQA requires an agency to examine at least one potentially feasible alternative to try to avoid or lessen significant

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environmental impacts that are central to the Project. *See Watsonville Pilots Ass’n.*, 183 Cal.App.4th at 1089-90 (EIR was deficient for failing to include reduced development alternative that would avoid or lessen the project’s primary growth-related significant impacts); *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1285, 1305 (invalidating EIR that failed to discuss any feasible alternative that would lessen the project’s primary water supply impact). Here, presenting only one alternative that would not even reduce, but in fact would increase, the Project’s significant environmental impacts does not contribute to a “reasonable range” of alternatives. *See* § 21100(b)(4); Guidelines § 15126.6(a) & (b).

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The DEIR itself underscores its failure in providing a reasonable range of alternatives when it is forced to identify the proposed Project itself as the environmentally superior “alternative.” DEIR at 6-12. This defeats the purpose of an alternatives analysis, and does not meet either the letter or the spirit of CEQA’s requirement that the DEIR identify an “environmentally superior” alternative to the proposed project. CEQA Guidelines § 15126.6.

There are numerous potentially feasible alternatives that the DEIR could and should have considered to reduce the Project’s potentially significant environmental impacts. For example, a revised DEIR should evaluate an alternative configuration of the WTGs that would avoid or reduce the Project’s air safety and land use impacts. *See* Exhibit 1. Likewise, a revised DEIR should evaluate alternative phasing for the Project that is coordinated with the implementation of new radar technologies that reduce or eliminate the air safety impacts from WTGs. *See id.*

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To the extent SMUD claims that additional alternatives would not achieve the Project objective of meeting SMUD’s Renewable Portfolio Standard (“RPS”) obligations, an EIR may not so narrowly define project objectives as to preclude an adequate evaluation of alternatives. *See Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 735-37.

Furthermore, as detailed in the attached Exhibit 2, RPS renewables can come from a range of sources and from all over the western part of North America. Under the Renewables Portfolio Standard, “eligible renewable sources” include: biodiesel, biomass, biomethane (including digester gas, and landfill gas), fuel cells using renewable fuels, geothermal, hydro-electric (including conduit hydroelectric, incremental hydroelectric generation from efficiency improvements, small hydroelectric, and water supply and conveyance), municipal solid waste combustion and conversion, ocean wave, ocean thermal, solar (including photovoltaic and solar thermal electric), tidal current, and wind. And renewable generation facilities eligible under the Renewables Portfolio

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Standard may be located anywhere within the region of the Western Electricity Coordinating Council, which includes all or parts of the 14 western United States, two Canadian provinces, and the northern portion of Baja California, Mexico.³ Therefore, in addition to alternatives in terms of potential project design in this location, there are wide ranging alternatives in terms of location and type of project.

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Also, there are at least some temporal alternatives. Even if the Renewables Portfolio Standard did require the construction of this specific project here (which it does not), it would not require the Project's construction right now. The Renewables Portfolio Standard requires procurement of renewables such that, overall, they will constitute a specified *percentage* of annual retail sales by specified *target dates*. That does not compel SMUD to construct this particular Project within a year's time. In short, the range of alternatives available to SMUD includes numerous options, which, in the most general terms, include building something else, somewhere else, at some other time. And CEQA requires consideration of those alternatives.

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Likewise, according to SMUD's own Policy SD-9, attached hereto as Exhibit 3, SMUD also meets its Net Zero goal via other methods including investments in vehicle and building electrification and energy efficiency. SMUD's Policy SD-9 also states that "[i]n meeting GHG reduction goals, SMUD shall emphasize local and regional environmental benefits." Such regional environmental benefits would be furthered by ensuring consistency with the LUCP. Finally, as noted, an alternative need not meet every Project objective or be the least costly in order to be feasible. *See* CEQA Guidelines § 15126.6(b).

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VI. The DEIR Must Be Recirculated.

Under California law, the present EIR cannot properly form the basis of a final EIR. CEQA and the CEQA Guidelines describe the circumstances that require recirculation of a draft EIR. Such circumstances include: (1) the addition of significant new information to the EIR after public notice is given of the availability of the DEIR but before certification, or (2) the draft EIR is so "fundamentally and basically inadequate

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³ California Energy Commission, *Renewables Portfolio Standard Eligibility*, 7th Ed., *Staff Final Guidebook* (April 2013), at pp. 16, 163; California Public Utilities Commission website on *33% Procurement Rules*, [at <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/33RPSProcurementRules.htm>]; Western Electricity Coordinating Council, *Fact Sheet* [at https://www.wecc.biz/_layouts/15/WopiFrame.aspx?sourcedoc=/Administrative/Fact%20Sheet%20-%20REVISED.pdf&action=default&DefaultItemOpen=1].

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and conclusory in nature that meaningful public review and comment were precluded.”
CEQA Guidelines § 15088.5.

Here, both circumstances apply. Decision-makers and the public cannot possibly assess the Project’s impacts through the present DEIR, which is riddled with errors. Among other fundamental deficiencies, the DEIR repeatedly understates and does not provide the relevant information regarding the Project’s significant land use and air safety impacts. Instead, it relies exclusively on the FAA’s No-Hazard Determinations, which were prepared for another purpose, and assumes without analysis that minimalistic mitigation measures would effectively reduce the Project’s impacts on air safety and land use. In order to resolve these issues, SMUD must prepare a revised EIR that would necessarily include substantial new information, including the information included herein. Furthermore, we reiterate that it is mandatory and imperative that SMUD obtain a consistency determination from ALUC prior to proceeding with the Solano 4 Wind Project. ALUC intends to pursue all legal means necessary to enforce this requirement.

ALUC looks forward to working with SMUD to ensure that any future development of the Solano 4 site prioritizes the health, safety, and welfare of Solano County’s residents, and is consistent with the development criteria established in the Travis Air Force Base LUCP. Please do not hesitate to contact us if you have any questions or concerns about this letter.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Robert “Perl” Perlmutter



Amy J. Bricker

cc: Thomas Randall, Chair, Solano County ALUC
Lee Axelrad, Deputy County Counsel

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Exhibit List

- Exhibit 1: Memorandum from Dr. Jerry Johnson, Director of Engineering, Regulus-Group, LLC, Washington, DC; Statement of Qualifications
- Exhibit 2: Union of Concerned Scientists, “The Clean Energy Race: How Do California’s Public Utilities Measure Up?” SMUD Fact Sheet
- Exhibit 3: SMUD Policy SD-9

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EXHIBIT 1



From: Dr. Jerry Johnson, Director of Engineering, Regulus-Group, LLC, Washington, DC
To: Shute, Mihaly, & Weinberger, LLP, San Francisco, CA
Subject: Review of Draft EIR for Additional wind turbines near Travis Air Force Base (Solano 4 Wind Project)
Date: Friday, August 6, 2019

Background

I have reviewed the portions of SMUD's Draft Environmental Impact Report for the Solano 4 Wind Project relating to air safety impacts. There are several key points about the existing wind turbine project and air operations that I'd like to mention. These are:

1. In general, it is well known that utility scale wind turbines impact primary surveillance radar systems when the turbines are located within the line of sight of radar. We discuss this issue further below.
2. Travis Air Force Base provides air traffic control services in the area where the proposed wind turbines are to be installed.
3. Travis Air Force Base air traffic controllers help maintain safe separation distances between aircraft operating in and through this area, including military and civilian aircraft up to 10,000 feet.
4. The existing turbines in the area of SMUD's current proposal have resulted in turbine radar interference affecting the primary surveillance radar system used by Travis Air Force Base.
5. Travis Air Force Base moved, and therefore lost, a circling approach as a consequence of existing turbines.
6. Travis would like to reclaim this airspace for its air operations.

5A-1

I would like to make the following points about SMUD's plan to add even more wind turbines to the wind resource area near Travis AFB.

Point #1: SMUD's Draft Environmental Impact Report (DEIR) does not include information needed to inform decision makers and the public of the scope of impacts because of the project.

The DEIR refers to the FAA aeronautical study (FAA 2019) conclusion:

"no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities."

5A-2

However, the DEIR does not mention that study states:

"The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines."



When wind turbine radar interference (that is, clutter) is high, the controller workload could be increased. More clutter tracks impair the controller's ability to direct air traffic. This impairment is due to the following:

1. Clutter tracks can produce track duals.
 - These dual tracks require the controller to work with aircraft to determine which aircraft target is real and which is false.
2. The clutter tracks and false targets require controllers to increase separation distances between aircraft.
 - ATC is responsible for safe separation between aircraft and a clutter track is viewed as another aircraft in the air space. This added aircraft requires separation from the other aircraft.
3. Pilots, in response to ATC, may have to effect maneuvers (for example, directed turns) for the controller to discern which track is real and which is clutter.
 - This increases the amount of radio communications between ATC and pilots thereby adding to the controller's workload.

Point #2: The DEIR report indicates the structures (wind turbines) would not be a hazard to air navigation, provided the turbines are marked with white paint and properly lighted.

Air lighting is necessary, but it is an obstruction avoidance system and not a radar interference mitigation technique. The lighting systems will not mitigate the interference of wind turbines on radar performance or air traffic control.

Point #3: The DEIR does not mention the ATC Minimum Vectoring Altitudes (MVA) for the area of the turbines would need to be increased.

FAA identified that "the adverse effect as described above on the NCT MVA." While increasing the MVA doesn't impact a significant number of operations, it is a noted adverse effect.

Point #4: The DEIR states the project could have potentially significant adverse impacts, but it does not discuss the impacts in a way that would enable the reader to know the degree or size of each type of impact.

For local public and decision makers to be informed of the degree or size of the potential impacts these proposed turbines present, the DEIR should state and discuss the following.

1. The effects on radar performance should be stated in terms of objective metrics.
 - Objective metrics allow decision makers to compare how the addition of new wind turbines will impact the primary radar.
 - These metrics include probability of false alarms and probability of detection.



2. The usual amount of clutter tracks over the wind turbine area should be stated and compared to any additional clutter expected by the new wind turbines.
 - Metrics such as frequency of clutter tracks (number of tracks per hour), average length of clutter tracks, minimum and maximum length of clutter tracks, and a history of the clutter over a 30-day period would help guide decision makers to assess the impact of the additional wind turbines.
 - Clutter tracks can produce track seductions (a real aircraft track is pulled to a false track) and track breaks. These are further phenomena that show the effects of wind turbines.
3. The expected number of dual tracks compared to real targets should be stated. This will tell the decision makers the effects on ATC operators and pilots, as noted above.
 - Metrics might include: the number of duals per hour; length of duals with customary statistics (such as, minimum length, maximum length, and average length, over a period of, say 30 days). These will help inform decision makers of the wind turbine effects.
4. The workload for operator engagement with aircraft because of clutter should be given to decision makers.
 - Metrics such as time spent directing aircraft due to clutter tracks (hours per month, say), frequency of aircraft told to change course because of clutter (number of aircraft per month, say) are examples.
 - It may be possible to determine workload issues with interviews of current ATC operators at Travis AFB.

5A-5
Cont'd

My suggestions do not mean those items or details needed to have been included in the FAA determinations. The FAA framed its response to FAA-specific requirements and made its determination. Still, the metrics above could show the effects of the wind turbine clutter on radar performance parameters, the controllers and, by extension, on pilots who respond to controller directions for separation.

Point #5: The DEIR fails to discuss other potentially feasible means to potentially mitigate the Project's adverse impacts.

- There is currently a Pilot Mitigation Program (PMP) at Travis AFB studying how small low-cost in-fill radar systems might be used to mitigate wind turbine radar interference. The PMP has concluded its data gathering work having operated 15 separate Civil Air Patrol flights (over 76-hours of flight time) with various combinations of flight paths, radars, STARS automation configurations, and operator evaluations. The PMP team is currently collecting these data and composing a final report for review and final dissemination.
- Infill radars are currently being evaluated for FAA validation so they can be used in the National Air Space. This effort is projected to take approximately 2 years.

5A-6





- Another mitigation effort underway is development of radar processing algorithms which may reduce clutter seen on the ATC screens.

While these efforts are promising they are not yet proven effective nor certified for use in the NAS. Consequently, the only way to guarantee turbines have no impact on a primary radar system today is to locate the turbines beyond line-of-sight of the radar.

↑
5A-6
Cont'd



Jerry Johnson

BS Electrical Engineering, University of Texas at San Antonio

MS Electrical Engineering, University of Kansas

PhD Electrical Engineering, Kansas State University

Jerry Johnson has more than 26 years of engineering experience with 18 of them specifically in NAS Surveillance and Navigation Systems. Most recently he provided Systems Engineering Support to the FAA for the Spectrum Efficient National Surveillance Radar (SENSR) Program, the Wind Turbine Radar Interference Mitigation (WTRIM) working group, and the Surveillance Portfolio Analysis (SPA) working group with focus on developing a strategy for an National Airspace System (NAS) surveillance roadmap from legacy to future systems.

Dr. Johnson joined Regulus Group from Thales and has excellent leadership skills that have allowed him to successfully lead engineering teams to derive requirements, design and develop highly complex products on an aggressive schedule and budget in the aerospace, telecommunications and manufacturing industries including several multi-national projects. Previous to Thales, Jerry served as a project engineer for BioServe Space Technologies where he participated in the design and integration of Life Science research hardware for 10 U.S. space shuttle missions and 2 Russian MIR missions.

Dr. Johnson acquired a Bachelor of Science in Electrical Engineering from the University of Texas at San Antonio, his Master of Science degree in Electrical Engineering from the University of Kansas, and a PhD in Electrical Engineering from Kansas State University.

EXHIBIT

2

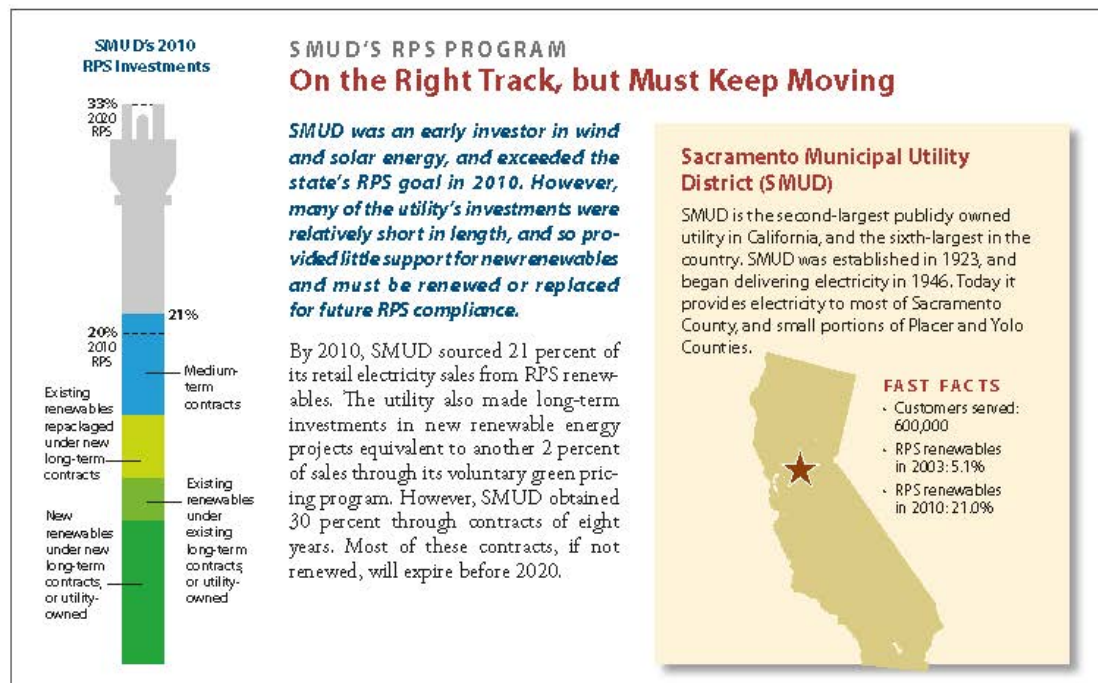


California's local publicly owned utilities, which supply about a quarter of the electricity used in the state, have made significant strides in investing in clean, renewable energy since the state passed its first renewable energy purchase law in 2002. The Renewables Portfolio Standard (RPS) was enacted to help California transition away from polluting fossil fuels and invest in electricity generation from renewable sources such as the wind and sun, in order to improve air quality, reduce global warming pollution, and expand the state's green economy. The original RPS set a goal for each California utility to obtain 20 percent of its electricity sales from renewable sources by 2010. In 2011, the law was strengthened to require all utilities to obtain 33 percent from renewables by 2020.

Not All Investments in Renewable Electricity Are Created Equal

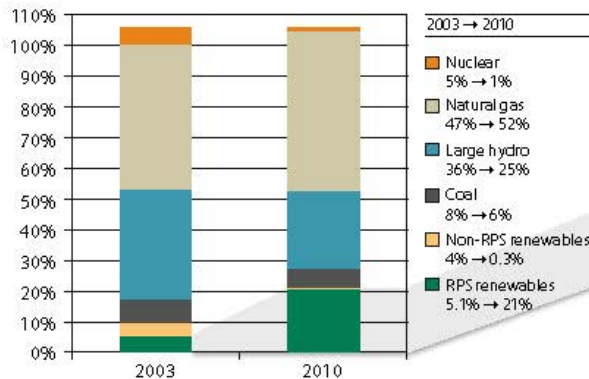
While a utility can take many approaches to procuring renewable energy, direct ownership and long-term contracts best support the development of new resources by providing financial security to developers. These long-term investments also lock in stable electricity prices for customers and help put a utility on track to meet the 33 percent RPS.

We evaluated the renewable energy investments made by California's 10 largest publicly owned utilities. We then classified each utility into one of three categories: "sprinting ahead," "on the right track, but must keep moving," or "false start," based on how much it has promoted the development of new sources of renewable energy, and whether it is on track to meet the 33 percent RPS.



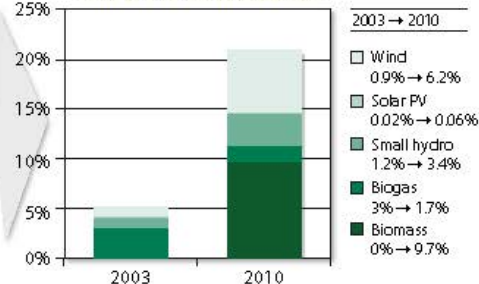
Photos: © Thinkstock/Jon Wachala (wind); © Thinkstock/Daniel Grill (solar); © Flickr/Patrick Dinden (turbines in field)

SMUD's Electricity Mix, 2003 and 2010



The electricity mix totals more than 100 percent of retail sales because it includes electricity lost through transmission.

SMUD's RPS Renewables



What's Powering SMUD?

In 2003, SMUD relied on "unspecified" market purchases—purchases from other utilities, power traders, and the electricity spot market containing a mix of resources—for just under half of its electricity. The utility generated a quarter of its electricity from its own natural gas plants. SMUD's Upper American River Project and federally owned large hydropower facilities contributed another 25 percent of electricity sales. The utility relied on a mix of renewables for the remaining 5.1 percent.

By 2010, SMUD had built the Cosumnes natural gas plant, which delivered 29 percent

of the utility's electricity needs. In total, SMUD relied on natural gas to supply 52 percent of total sales. From 2003 to 2010, SMUD quadrupled its renewables to 21 percent of retail electricity sales. These investments replaced "unspecified" power purchases, which declined to 17 percent in 2010.

SMUD's Renewables

SMUD built the nation's first utility-scale photovoltaic (PV) solar array in 1984, at Rancho Seco, the site of its closed nuclear facility. A decade later, SMUD built wind turbines on land it purchased in Solano

SMUD built the nation's first utility-scale PV solar array in 1984, at the site of its closed nuclear facility. A decade later, SMUD built wind turbines on land it purchased in Solano County that now hosts 230 MW of generation capacity.



County that now hosts 230 megawatts of capacity. By 2003, SMUD sourced 5.1 percent of its electricity from renewables. In addition to its early investments in solar and wind energy, SMUD procured electricity from an existing wood-waste biomass plant in Washington, its own small hydropower facilities, biogas from two local landfills, and two other wind projects that came online in 2003.

By 2010, SMUD was procuring 21 percent of its retail electricity sales from RPS renewables. From 2003 to 2010, SMUD signed additional contracts with existing small hydropower, biomass facilities in Washington and Idaho, existing small hydropower facilities in California, and biogas from two in-state landfills and a local dairy manure digester. The utility also invested in solar PV through its SolarShares program and the first installations under its feed-in tariff program.¹

SMUD obtained 30 percent of its 2010 RPS mix through eight-year contracts. Most

¹ SMUD's SolarShares program allows customers who cannot install solar on their roofs to invest in solar PV elsewhere and receive credit on their electricity bills for the energy those arrays produce. Of the 10 POUs we reviewed, SMUD is the only one to offer such a program.

of these brought electricity into the state temporarily from existing small hydropower and wood-waste biomass plants in Washington and Idaho. SMUD also purchased a 15-year contract for injected landfill gas from Shell Energy, collected at the McCommas Bluff landfill in Texas. The RPS-eligible electricity associated with this contract is generated at SMUD's Consummation natural gas power plant. This contract comprised approximately 9 percent of SMUD's 2010 RPS mix. The CEC is currently reassessing how to treat the eligibility of injected landfill gas contracts for the RPS.

SMUD obtained another 37 percent of its 2010 RPS mix through 10- and 12-year contracts with out-of-state wood-waste biomass, local landfill biogas, and in-state small hydropower facilities. This group of contracts also

included the 2003 contract with the High Winds wind facility in Solano County.

SMUD obtained just over a third of its 2010 RPS mix through longer-term investments. These include the Solano wind project; a variety of small, in-state hydropower facilities, some owned by SMUD; in-state landfill biogas units; and solar PV through SMUD's various programs and investments.

Most utilities offer voluntary green pricing programs that allow customers to purchase renewable energy at a premium. In most cases, these programs make REC-only purchases on behalf of their customers. SMUD is the only utility we reviewed that made long-term investments for new renewable energy projects as a part of its voluntary green pricing program, called Greenery. These long-

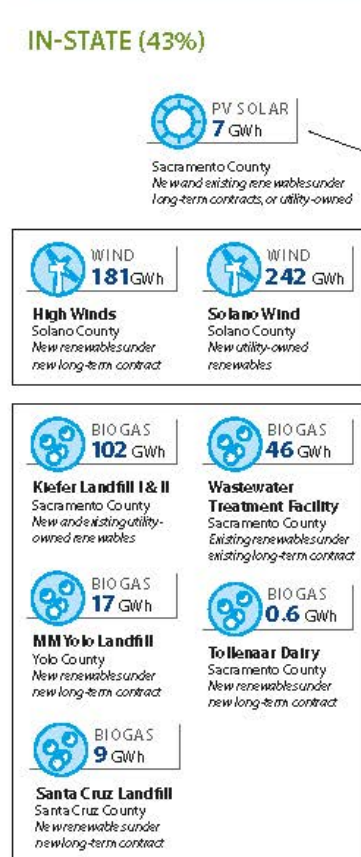
SMUD obtained 30 percent of its 2010 RPS mix through eight-year contracts. Most of these brought electricity into the state temporarily from existing small hydropower and biomass plants in Washington and Idaho.

term investments, which otherwise could have been used for SMUD's RPS program, contributed approximately another 2 percent of electricity sales.²

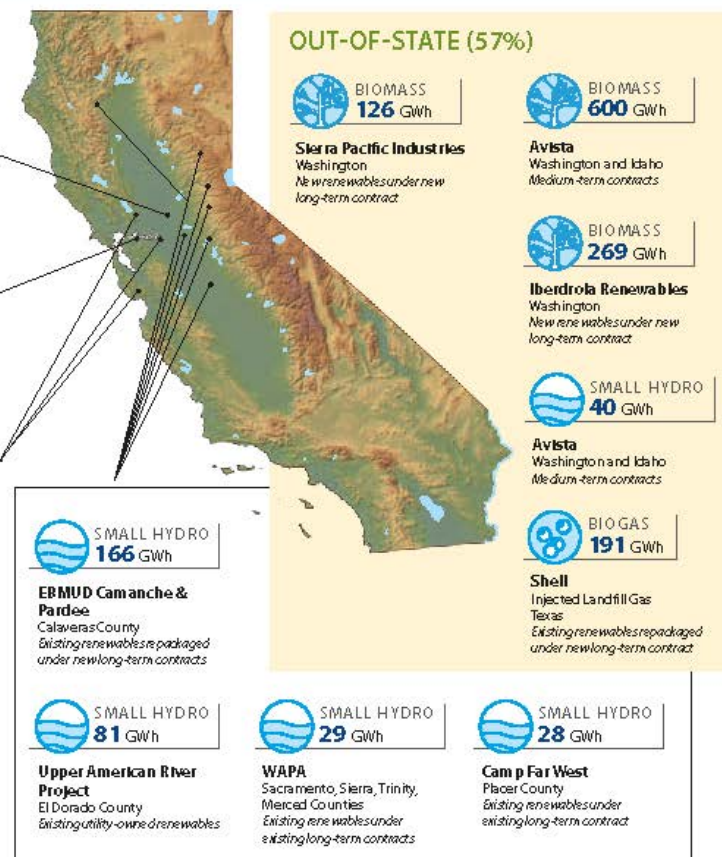
² By the end of 2010, SMUD's Greenery program contributed 3.8 percent of its retail electricity sales. Approximately half of this came from REC-only purchases and half from long-term contracts for new renewable energy facilities.

Sources of SMUD's RPS Renewables, 2010

IN-STATE (43%)



OUT-OF-STATE (57%)





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Looking Ahead to 33 Percent

The 33 percent RPS law requires each utility to procure 20 percent of its retail electricity sales from renewables by 2013, 25 percent by 2016, and 33 percent by 2020. Each utility must also make “reasonable progress” on renewable energy investments between those deadlines. If the state is to transition to a clean, safe, and sustainable electricity system, utilities must meet these standards in a way that prepares them to move well beyond the 33 percent RPS.

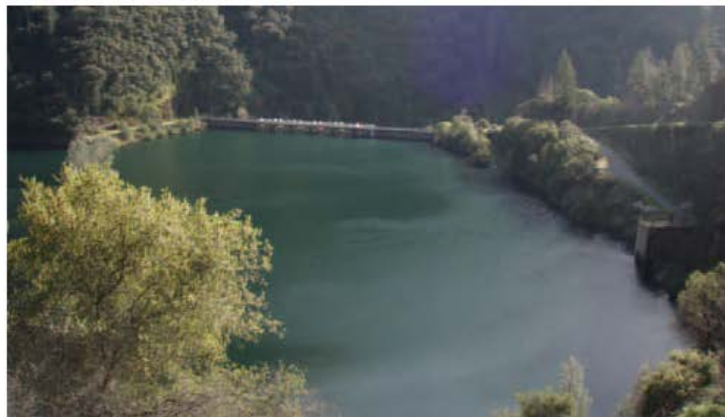
In 2010, SMUD’s renewable energy portfolio was diverse, but its contracts were relatively short in length. Nearly 70 percent of SMUD’s investments were for 12 years or less and 30 percent were for eight years or less. The utility will need to renew these contracts or sign new ones just to maintain its level of RPS renewables, let alone reach 33 percent. In addition, less than half of SMUD’s investments for its 2010 RPS program were comprised of long-term commitments for new renewable energy facilities.

Since 2010, SMUD has more than doubled the generation capacity at its Solano Wind facility. The utility is also expanding the generating capacity of a local wastewater treatment plant, and expects to receive electricity from new solar PV projects through its feed-in tariff program. This additional electricity generation is expected to increase SMUD’s RPS mix by another 6 percent of retail sales.

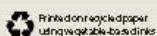
If the state is to transition to a clean, safe, and sustainable electricity system, utilities must meet these standards in a way that prepares them to move well beyond the 33 percent RPS.

Tracking Future Progress

SMUD’s RPS Procurement Plan will provide details on the utility’s strategy for reaching the 33 percent RPS by 2020. The utility’s board of directors must approve this plan and make it available to the public. Any changes to this plan trigger a 10-day public notice that must be posted on the website of the California Energy Commission (CEC): http://www.energy.ca.gov/portfolio/rps_pou_reports.html. The CEC also maintains a database of contracts executed to meet the RPS, available on the same website. More information on SMUD’s renewable energy programs is also available at: <https://www.smud.org>.



Upper American River Project © Trout Unlimited



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Union of Concerned Scientists

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world.

The full report can be downloaded (in PDF format) from www.ucsusa.org/cleanenergyrace.

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EXHIBIT

3

<u>SMUD BOARD POLICY</u>	
Category: Strategic Direction	Title: Resource Planning
	Policy Number: SD-9
Adoption Date: May 6, 2004	Resolution No. 04-05-11
Revision: May 6, 2004	Resolution No. 04-05-12
Revision: September 15, 2004	Resolution No. 04-09-11
Revision: May 17, 2007	Resolution No. 07-05-10
Revision: December 18, 2008	Resolution No. 08-12-15
Revision: November 19, 2009	Resolution No. 09-11-08
Revision: May 6, 2010	Resolution No. 10-05-03
Revision: May 19, 2011	Resolution No. 11-05-05
Revision: December 20, 2012	Resolution No. 12-12-12
Revision: October 3, 2013	Resolution No. 13-10-09
Revision: September 17, 2015	Resolution No. 15-09-11
Revision: October 20, 2016	Resolution No. 16-10-14
Revision: October 18, 2018	Resolution No. 18-10-11

It is a core value of SMUD to provide its customer-owners with a sustainable power supply through the use of an integrated resource planning process. A sustainable power supply is defined as one that reduces SMUD's net long-term greenhouse gas (GHG) emissions to serve retail customer load to Net Zero by 2040. Net Zero is achieved through investments in vehicle and building electrification, energy efficiency, clean distributed resources, RPS eligible renewables, large hydro, and biogas. SMUD shall assure reliability of the system, minimize environmental impacts on land, habitat, water quality, and air quality, and maintain a competitive position relative to other California electricity providers.

To guide SMUD in its resource evaluation and investment, the Board sets the following interim goal:

Year	Net Greenhouse Gas Emissions (metric tons)
2020	2,318,000
2030	1,350,000
2040	Net Zero
2050	Net Zero

In keeping with this policy, SMUD shall also achieve the following:

- a) SMUD's goal is to achieve Energy Efficiency equal to 15% of retail load over the next 10-year period. On an annual basis, SMUD will achieve energy efficiency savings of 1.5% of the average annual retail energy sales over the three-year period ending with the current year.

To do this, SMUD will acquire as much cost effective and reliable energy efficiency as feasible through programs that optimize value across all customers. SMUD shall support additional energy efficiency acquisition by targeting one percent (1%) of retail revenues for above market costs associated with education, market transformation, and programs for hard to reach or higher cost customer segments. The market value of energy efficiency will include environmental attributes, local capacity value and other customer costs reduced by an efficiency measure.
- b) Provide dependable renewable resources to meet 33% of SMUD's retail sales by 2020, 44% by 2024, 52% by 2027, and 60% of its retail sales by 2030 and thereafter, excluding additional renewable energy acquired for certain customer programs.
- c) In meeting GHG reduction goals, SMUD shall emphasize local and regional environmental benefits.
- d) SMUD will continue exploring additional opportunities to accelerate and reduce carbon in our region beyond the GHG goals in this policy.
- e) Promote cost effective, clean distributed generation through SMUD programs.

Monitoring Method: GM Report
Frequency: Annual

Letter 5-1 Response	Robert “Perl” Perlmutter, Amy J. Bricker Shute, Mihaly & Weinberger, LLP September 6, 2019
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L5-1 The DEIR fails to comply with CEQA. The commenters write on behalf of the Solano County Airport Land Use Commission (ALUC). Their letter incorporates by reference their earlier February 8, 2019 letter regarding SMUD’s NOP. The commenters state that the DEIR fails to comply with CEQA by failing to: 1) adequately describe the project or its environmental and regulatory setting; 2) adequately analyze the project’s relationship to the Travis Air Force Base Land Use Compatibility Plan (LUCP); 3) adequately analyze the project’s significant impacts; 4) adequately analyze the project’s cumulative impacts; 5) provide for adequate mitigation of the project’s significant impacts; or 6) evaluate a reasonable range of alternatives. The commenters reiterate their earlier position that ALUC disagrees with SMUD’s assertion that SMUD is not required to obtain a consistency determination from ALUC for project approval. The commenters refer to a review of the DEIR by Dr. Jerry Johnson of the Regulus-Group, LLC, which is included with the commenters’ letter.

SMUD has followed the requirements of CEQA for public agencies to consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (Public Resources Code Section 2100 et seq.). In accordance with 14 CCR Section 15161, SMUD prepared a DEIR for the proposed project and determined that the DEIR has been sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated.

As discussed in detail in the Master Response - *Land Use*, SMUD maintains that the Solano 4 Wind Project does not require Airport Land Use Commission (ALUC) approval for the following reasons: 1) Electrical generation/production facilities are exempt from a county’s building and zoning ordinances under California Government Code Section 53091, subdivisions (d) and (e); 2) The Federal Aviation Administration (FAA) determinations of no significant hazard for the project preempt the ALUC regulations under the Travis Air Force Base (AFB) LUCP regarding air safety, including radar interference (Appendix G FAA Determination), and no aspects of the LUCP apply to the project other than those that are preempted; 3) The ALUC does not have authority to review individual projects, such as SMUD’s Generation Project, under the State Aeronautics Act (SAA); and, 4) Even if one were somehow to conclude the ALUC regulations did apply to the project, SMUD, as a local agency, has the authority to overrule the ALUC determination pursuant to the SAA.

Please refer to specific responses below regarding the six points of purported CEQA inadequacy as identified in this Shute, Mihaly & Weinberger letter.

L5-2 Point 1. The DEIR does not adequately describe the project or the environmental setting (addressed in detail in responses L5-2 through L5-8). The commenters summarize case law regarding Project Description and Environmental Setting to address their argument that the DEIR does not adequately describe the project or the environmental setting per case law and CEQA.

The majority of the comment describes general case law regarding the requirements for an adequate Project Description and Environmental Setting under CEQA and does not raise any specific concerns about the adequacy of the DEIR. Further, in accordance with 14 CCR Section 15161, SMUD prepared a DEIR for the proposed project and determined that the DEIR has been sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated.

L5-3 The commenters reiterate earlier comments about turbine details and how they are described in the EIR. They state that the information is inadequate, in part, because the model and final location of the turbines will be selected at a later date.

As discussed in Section 2.5.1 of the DEIR (*Wind Turbine Generators*), the model of the Wind Turbine Generators (WTGs) to be used for the Solano 4 Wind Project has not yet been selected due to project schedule, ability to meet SMUD's design criteria, product availability, and construction and operating costs. Various manufacturers offer WTGs in the size ranges proposed for the project. The sizes contemplated for the project reflect the current state-of-the-industry standards for land-based WTGs deployed throughout the United States and overseas. In keeping with these standards, individual WTGs would have a maximum height of approximately 492-591 feet (150-180 meters) and a maximum rotor diameter of approximately 446-492 feet (136-150 meters).

The Solano 4 Wind Project would reduce the total number of WTGs within the project boundaries by replacing 23 WTGs with up to 22 new WTGs. The FAA's Determinations of No Hazard (DNHs) state that the Solano 4 wind turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation."

Exhibit 2-2 of the DEIR shows the potential siting areas (footprints) where WTGs would be installed for the Solano 4 Wind Project. Although the final locations of the WTGs would be determined after SMUD completes the procurement process (as is common place in this type of project), this analysis assumes that the 136-meter or 150-meter rotor diameter WTGs would be located in or near the locations shown in Exhibit 2-2 of the DEIR. This level of design is typical for wind projects and may require slight adjustments after final engineering has been completed. The information provided in Section 2.5 of the DEIR (*Project Characteristics and Components*), includes a detailed

description of the project including description of the WTGs; towers; rotor blades; braking system; and safety, lighting, and grounding. Mitigation Measure 3.1-1a: *Design the Project to Avoid Aesthetic Impacts*, addresses reflectivity and requires the use of low-reflectivity finishes for WTGs and all other structures (e.g., meteorology towers). The project characteristics and components and detailed layout maps provide adequate information to analyze the impacts of the project.

Additionally, prior to the preparation of the DEIR, SMUD commissioned a supplemental individual obstruction evaluation and airspace analysis (Capitol Airspace Group 2018a) to identify obstacle clearance surfaces established by the FAA, and a supplemental radar cumulative impact study with proposed solutions and design elements to avoid or minimize potential safety impacts (Westslope 2018a). The Capitol Airspace Group supplemental study performed a series of analyses that are similar to the FAA aeronautical analysis and process. The supplemental study was commissioned to provide SMUD with a reasonable expectation of the likely outcome of the FAA review process. The supplemental Travis AFB radar system modeling study determined there would be a negligible impact over baseline on the associated radar systems for installation of twenty-two (22) 136-meter turbines following removal of the existing twenty-three (23) 47-meter turbines, and a net zero impact for installation of nineteen (19) 150-meter turbines following removal of the existing twenty-three (23) 47-meter turbines compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a). Both supplemental studies are included in Appendix A of this FEIR.

L5-4 The commenters state that the FAA reviewed 19 proposed turbines although the DEIR refers to an FAA review of 22.

As discussed in Section 2.5 of the DEIR (*Project Characteristics and Components*), SMUD proposes to construct up to 22 new WTGs; up to 10 in Solano 4 East and up to 12 in Solano 4 West to meet the goal of generating 91 MW of electrical capacity at the point of interconnection with the grid managed by the California Independent System Operator (CAISO). SMUD would comply with the FAA and any changes to construction or alteration, including but not limited to changes in heights, which requires separate notice to the FAA. SMUD would apply to the FAA for any turbine locations that do not already have an FAA determination. The Westslope supplemental radar system modeling study determined there would be a negligible impact over baseline to the associated radar systems for installation of 22 turbines following removal of the existing 23 turbines, and a net zero impact for installation of 19 turbines following removal of the existing 23 turbines compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a). The scope of a DEIR's analysis is not limited by the number

of turbines analyzed in a FAA determination, but properly reflects the different ways the project could ultimately be designed and built and provides a conservative analysis by analyzing the environmental impacts of the largest possible project footprint, assumed to be the most impactful configuration. The FAA reviewed 19 turbines for the 150-meter WTG configuration and issued Determination of No Hazard letters dated February 1, 2019 for all turbines. SMUD submitted 19 proposed WTGs for FAA review based on the larger 150-meter rotor diameter WTGs since these turbines would be the tallest of the WTGs being considered for the project and the worst-case scenario for height. A sample DNH was included in Appendix G of the DEIR. Each turbine received the same determination from the FAA. Each of the 19 DNHs is included in Appendix B of this FEIR. SMUD would obtain FAA determinations for all final turbine locations that have either changed from the locations originally proposed or those that changed due to the design ultimately chosen. The ultimate number of turbines installed would not exceed 22 and any additional WTGs beyond the 19 the FAA already reviewed would be submitted to the FAA for review. There is no reason to speculate that any new or revised submittals would result in a different determination by the FAA for any specific WTG.

L5-5 The commenters state that the DEIR includes only one of the FAA determinations.

The DEIR states the FAA “conducted an independent evaluation of the Solano 4 Wind Project and determined there would be no significant hazard to air traffic control operations” (page 3.7-22). The FAA reviewed 19 turbines for the 150-meter WTG configuration and provided DNH letters dated February 1, 2019 for each of the turbines. As stated above in response to comment L 5-4, a sample DNH findings was included in Appendix G of the DEIR. Because the DNHs are virtually identical, it was unnecessary to include all appendices to the DEIR. For additional clarification, all 19 DNHs received from the FAA are included in Appendix B of this FEIR. The DNHs are also available to the public on the FAA website, <https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp>.

L5-6 The commenters allege that changing megawatt output numbers in the DEIR (91 MW versus 92 MW) may be indicative of inadequate alternatives analysis.

There is no evidence to suggest that there would be a different determination in the alternatives analysis between 91 MW versus 92 MW. The difference in 91 MW versus 92 MW would not result in a different number of turbines than analyzed in the DEIR and would not result in taller or shorter turbines than those analyzed in the DEIR. Operations would remain within the parameters described and evaluated in the DEIR. Therefore, such differences are immaterial to the environmental analysis. The DEIR is sufficiently detailed to inform the public and decisionmakers and enable them to conduct a meaningful evaluation of the way project impacts were avoided, minimized, or mitigated. The adjustment of the MW output of the project did not result in a change in the

severity of any impacts disclosed in the DEIR and was not at a magnitude sufficient to warrant changing the range of alternatives; nor did it change any of the impacts conclusions reached in the DEIR. Slight project adjustments are inherent in any project as they move through refinements and design.

L5-7 The commenters state that they interpret the language in the DEIR to indicate that there could be a possible unspecified future expansion of the project (e.g., larger turbines) without any analysis of potential impacts and provide language from the DEIR they believe could be interpreted this way.

SMUD does not have any plans for replacement of Solano Phases 2 and 3 or for acquisition or development of additional property for wind generation at this time. Any wind energy development or repower projects SMUD may decide to propose in the future in the Solano Wind Resource Area are not part of the project proposed and analyzed in the DEIR and would need to go through a new, separate CEQA review process at the time proposed. It is unknown at this time what future industry technology will entail with regards to turbine design. The DEIR does not contend that any of these future changes are covered under this CEQA review. Any decisions about the future use of the site at the end of the project's operational life (typically about 30 years) would be purely speculative as it is impossible to know what future technology and energy needs will be at that time. CEQA does not require the lead agency to engage in speculation (*Center for Biological Diversity v. County of San Bernardino* (2016) 247 Cal.App.4th 326, 348-350 [rejecting similar argument that project description was unstable and misleading simply because it did not analyze operation of groundwater pumping project beyond the fifty-year term of the proposed project].) No revisions to the DEIR are necessary.

L5-8 The commenters state there is a lack of environmental setting information, such as radar equipment and aircraft types, and regulatory setting.

The *Environmental Setting* is described in each subject area chapter of the DEIR as pertinent to the analysis of the Solano 4 Wind Project. For example, the DEIR (page 3.1-37) describes the Aircraft Detection Lighting System (ADLS) as a radar-based obstacle avoidance system that activates obstruction lighting and audio signals only when an aircraft is close to an obstruction on which an ADLS unit is mounted, such as a wind turbine. According to the FAA report, the proposed WTGs would be within the line of sight of the Stockton CA (SCK) ASR-11, Travis (SUU) Digital Airport Surveillance Radar (DASR), Mill Valley (QMV) ARSR-4, and McClellan (MCC) ASR-9 radar facilities (DEIR page 3.7-14). SMUD commissioned an individual obstruction evaluation and airspace analysis (Capitol Airspace Group 2018a) to identify obstacle clearance surfaces established by the FAA, and a radar cumulative impact study with proposed mitigation solutions (Westslope 2018a). The Capitol Airspace Group study performed a series of analyses that are similar to the FAA aeronautical

analysis and process and was prepared to give SMUD a reasonable expectation of the FAA outcomes. The Travis AFB radar system modeling study determined there would be a negligible impact over baseline to the associated radar systems for installation of twenty-two (22) 136M turbines following removal of the existing 23, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a). Both studies are included in Appendix A of this FEIR. Results of these supplemental cumulative impact studies conducted by Westslope Consulting and Capitol Airspace are further discussed in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson. Additionally, at the request of SMUD, the FAA determined that the Solano 4 Wind Project “would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation.” The DNHs state that the aeronautical studies “considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact” resulting from the Solano 4 Wind Project when combined with the impact of other existing structures (see Appendix B of this FEIR).

The specific information on aircraft types requested by the commenter is not relevant to the analysis presented in the DEIR. Any risk to aircraft resulting from the project has been addressed through FAA regulations, which take into account any aircraft that may be operating in the nearby airspace both now and in the future. No revisions to the DEIR are necessary.

The *Regulatory Setting* is described in each subject area chapter of the DEIR as pertinent to the analysis of the Solano 4 Wind Project.

The *Regulatory Setting* section 3.7.1 in Chapter 3.7, *Hazards and Hazardous Materials* of the DEIR describes the role of the State Aeronautics Act, ALUC, and LUCP, even though the Solano 4 Wind Project does not require ALUC approval.

The LUCP has only one element in it that would apply to the Solano 4 Wind Project, the line of site standard. Please refer to the Master Response in this FEIR for an explanation of why any possible inconsistency with the LUCP does not equate to a significant adverse change in the physical environment under CEQA.

SMUD believes the DEIR contains sufficient information to inform the reader and that the FAA has sufficient information at its disposal to make a Determination of Hazard or No Hazard. Therefore, in summary, the information

requested by the commenters is either included, not relevant, or unnecessary to the hazard determination and CEQA analysis. No revisions to language in the DEIR are necessary.

L5-9 Point 2. The commenters state that the DEIR does not properly analyze the project's relationship to the Travis AFB LUCP.

Please refer to the Master Response Land Use and response to comment L5-1 above for an explanation of why the project is exempt from ALUC review and why any possible inconsistency with the LUCP does not equate to a significant adverse change in the physical environment under CEQA. Also, Chapter 3.7 of the DEIR analyzes safety hazard impacts to air traffic (page 3.7-21 to 3.7-23). No revisions to the language in the DEIR are necessary.

L5-10 The commenters disagree with the DEIR's statement that the FAA's Determination of No Hazard Finding (NHF or DNH) for the project preempts the ALUC's land use regulations regarding radar system interference. The commenters state that the FAA does not have authority over local land use decisions as evidenced by FAA Order JO 7400.2M § 5-1-2a, case law cited by the commenters, and the California Department of Transportation regarding implementation of the SAA. The commenters assert that there is no federal preemption of ALUC's review of the project.

This comment is duplicative of other comments. Please refer to the Downey Brand letter dated April 26, 2019 in response to Solano County ALUC comments on SMUD's Notice of Preparation for the Solano 4 Wind Project (included in Appendix C of this Final EIR). Also see the Master Response in this FEIR and response to comment L5-1 above for an explanation of why the project is exempt from ALUC review. *Please also refer to FEIR Appendix B (FAA Determinations).*

While the commenter may disagree with the DEIR's conclusions regarding jurisdiction, the DEIR's analysis addresses all of the possible physical environmental impacts associated with the project, including the ALUC's land use plan and possible hazards associated with wind turbines at this location. Based on substantial evidence—including the FAA DNHs, consultation with Travis AFB, and consultations with SMUD's own aeronautic safety experts, the DEIR concluded that the project's impacts in this regard will remain less than significant. Consequently, no revisions to the language in the DEIR are necessary.

L5-11 The LUCP provisions apply to SMUD. The commenters contest the DEIR's statement that LUCP provisions do not apply to SMUD WTG facilities under Section 53091 of the California Code. The commenters state that per the law, SMUD is among the local agencies that are subject to ALUC review. Per the commenters, the statutory exemption from LUCP compliance applies to counties or cities, and ALUC is neither.

This comment is duplicative of other comments. Please refer to Master Response Land Use and responses to comments L5-1 and L5-10, above, for an explanation of the multiple reasons why the project is exempt from ALUC review. SMUD is not solely relying on Section 53091 for exemption. No revisions to the language in the DEIR are necessary.

L5-12 SMUD does not have the authority to overrule ALUC, nor would such authority obviate the need for CEQA review. The commenters dispute the DEIR statements that SMUD as a local agency can overrule the ALUC determination, and that it need not analyze or mitigate any potential land use inconsistency with the LUCP. The commenters state that the override powers granted to cities and counties based on their power to adopt and amend general plans under the Public Utilities Code do not apply to SMUD, because it is neither a city nor a county. The commenters note that even if SMUD could override ALUC, the DEIR is mistaken in concluding that the override would happen. The commenters state that ALUC would still perform a consistency review and the local agency could approve the override only upon a two-thirds vote and making certain findings. The commenters believe that the DEIR portrays SMUD as not caring about local considerations. They ask that the DEIR be revised to include an analysis of the project's land use impacts and all feasible mitigation measures.

The comment is duplicative with other comments. Please refer to the Master Response *Land Use* and responses to comments L5-1 and L5-10 above for an explanation of why the project is exempt from ALUC review. The allegation that the DEIR fails to adequately analyze the environmental impacts of the project related to aerial safety is addressed in the Responses L5-8, L5-13, and L5-14. Further, no matter the procedural steps associated with approving the project, the DEIR evaluates both aeronautic safety, the ALUC's LUCP, and related land use issues, finding that the project as proposed would not have a significant physical impact in these areas. No revisions to the language in the DEIR are necessary.

L5-13 Points 3 and 5. The DEIR fails to adequately analyze or mitigate the project's significant impacts. The commenters point out that the DEIR states that there would be a "potentially significant" impact if "placement of the WTGs intrude into navigable airspace, thereby increasing the risk of aircraft collision, or causing interference with radar signals used by air traffic control."

Impact 3.7-3: *Safety Hazard to Air Traffic* of the DEIR (page 3.7-21) identifies this impact as "potentially significant" before mitigation. The DEIR analysis concludes that there would be a **less than significant** impact with the implementation of Mitigation Measure 3.7-3 that requires that the WTGs be marked according to FAA regulations and made visible to any air traffic for avoidance. Therefore, a clear final impact determination is stated.

Furthermore, SMUD commissioned a supplemental individual obstruction evaluation and airspace analysis (Capitol Airspace Group 2018a) to identify

obstacle clearance surfaces established by the FAA, and a supplemental radar cumulative impact study with design elements to avoid or minimize potential safety impacts (Westslope 2018a). The Capitol Airspace Group supplemental study performed a series of analyses that are similar to the FAA aeronautical analysis and process. The supplemental study was commissioned to provide SMUD with a reasonable expectation of the likely outcome of the FAA review process. The supplemental radar cumulative impact modeling study determined there would be a negligible impact over baseline to the associated Travis AFB radar systems resulting from installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact (Westslope 2018a). Both supplemental studies are included in Appendix A of this FEIR. Pursuant to applications filed by SMUD, the FAA issued DNHs for each of the proposed turbines for the project; the FAA also confirmed that the DNHs encompass not only the Visual Flight Rules (VFR) routes but also potential impacts on radar. No revisions to the language in the DEIR are necessary.

L5-14 The DEIR analysis of the potentially significant impacts is inadequate. The commenters state that after admitting that the project would increase the risk of aircraft collisions or radar signal interference, the DEIR dismisses impacts.

The DEIR does not “admit” that the project would increase the risk of aircraft collision and cause interference with radar signals. Rather, the DEIR states there is “potential,” which is then further analyzed and discussed. Through SMUD’s thorough analysis of potential risks, it was determined that there is a less-than-significant impact.

Results of the supplemental cumulative impact studies conducted by Westslope Consulting (2018a) and Capitol Airspace (2018a), and mitigation efforts are discussed in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson. Westslope Consulting concluded there would be a negligible impact over baseline to the associated radar systems for installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact.

Additionally, the FAA determined that the Solano 4 Wind Project “would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation.” The DNHs state that the aeronautical studies “considered and analyzed the impact on existing and proposed arrival,

departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact” resulting from the Solano 4 Wind Project when combined with the impacts of other existing structures (see Appendix B - FAA Determinations).

Also, please see Master Response *Safety Concerns Related to Project Siting*.

L5-15 CEQA Requirements for EIRs. The commenters cite CEQA guidelines for an EIR and applicable case law. The commenters state “the EIR must explain the nature and extent of the increased risks for aircraft collision and radar interference in a manner calculated for the public to understand” and set forth standards of significance.

The CEQA guidelines for EIRs and case law are noted. SMUD has followed the requirements of CEQA for public agencies to consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (Public Resources Code Section 2100 et seq.). In accordance with 14 CCR Section 15161, SMUD prepared a DEIR for the proposed project and determined that the DEIR has been sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated. As discussed above, SMUD adequately considered the hazards and air safety impacts of the WTGs.

Please also see responses to comments L5-13 and L5-14 above. No revisions to the language in the EIR are necessary.

L5-16 The DEIR relies entirely on the FAA’s Determination of No Hazard (DNH). The commenters contend that the DEIR relies entirely on the FAA’s NHD (DNH) to improperly dismiss air safety concerns raised by ALUC, and that the NHD (DNH) did not “dismiss” ALUC’s concerns. The commenters argue that the NHD (DNH) “does not purport to satisfy anything other than the FAA’s limited criteria” and requires the applicant to comply with “any law, ordinance, or regulation of any Federal, State, or local government body.” The commenters state that the NHD (DNH) does not include a review of the entire proposed project (22 vs. 19 WTGs)

Please see responses L5-4 and L5-8 above and Master Response *Safety Concerns Related to Project Siting*. SMUD followed all applicable laws and rules in analyzing the project’s potential impact on the environment, and relied on the FAA’s DNH, consultations with Travis AFB, and the evaluation and conclusions of its own experts. Contrary to the comment, while DNHs were secured for 19 WTGs, the DEIR and appended studies evaluated up to 22 WTGs. Westslope Consulting evaluated potential sites for the twenty-two (22) 136M turbine configuration and concluded there would be a negligible impact over baseline to the associated radar systems for installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs and were all eligible

for DNH. The FAA reviewed 19 turbines for the 150-meter WTG configuration and issued DNH letters dated February 1, 2019 for all 19 turbines. SMUD submitted 19 proposed WTGs for FAA review based on the larger 150-meter rotor diameter WTGs since these turbines would be the tallest of the WTGs being considered for the project and the worst-case scenario for height. Each turbine received the same determination from the FAA. Each of the 19 DNHs is included in Appendix B of this FEIR. SMUD would obtain FAA determinations for all final turbine locations that have either changed from the locations originally proposed or those that changed due to the design ultimately chosen. The ultimate number of turbines installed would not exceed 22 and any additional WTGs beyond the 19 the FAA already reviewed would be submitted to the FAA for review. There is no reason to speculate that any new or revised submittals would result in a different determination by the FAA for any specific WTG. DNHs were not necessary for all 22 WTGs, particularly given the consistent conclusions of the issued DNHs and other substantial evidence. No changes to the language in the DEIR are necessary.

L5-17 CEQA requirements and regulatory standards. The commenters discuss CEQA requirements and case law regarding EIRs improperly relying on compliance with regulatory standards to avoid doing impact analysis (e.g., *Californians for Alternatives to Toxics v. Department of Food & Agriculture* (2005) 136 Cal.App.4th 1).

As stated in response to comment L5-15 above, SMUD is familiar with all relevant CEQA requirements and applicable case law.

Please see response L5-8 above and Master Response *Safety Concerns Related to Project Siting*. Here, unlike the circumstances in *Californians for Alternatives to Toxics*, SMUD did not just rely on compliance with regulatory standards to determine a less than significant impact under CEQA. Instead, SMUD relied both on regulatory standards as well as site-specific evaluation and analysis, which together constitute substantial evidence of a less than significant impact related to aerial hazards. Such analysis and conclusions are entirely appropriate. (See *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884, 904 (city compliance with building code and other regulatory provisions in conjunction with site-specific geotechnical investigation provided substantial evidence that seismic impacts would remain less than significant)). No revisions to the language in the DEIR are necessary.

L5-18 Report by Dr. Johnson of the Regulus Group and air safety impacts. The commenters reference the Regulus Group report and contend the DEIR analysis is inadequate and would need to assess “(1) the increase in ATC MVA for the area of WTGs; (2) objective metrics for radar interference; (3) clutter and dual tracks; and (4) workload for operator engagement with aircraft because of clutter.” They further state that the DEIR “fails to provide substantial evidence to support its determination that the project will result in insignificant air safety impacts.”

Please see the results of the supplemental cumulative impact studies conducted by Westslope Consulting (2018a) and Capitol Airspace (2018a) that are included in Appendix A of this FEIR, and the Westslope letter dated March 30, 2021 responding to the memorandum from Dr. Jerry Johnson included in Appendix C of this FEIR. Also, see responses from Geoff Blackman in the Transcript from the ALUC hearing included in Appendix A. The analysis provided is thorough and adequate. These findings are further supported by response to comments in letter L5a. No further revisions to the language in the DEIR are necessary.

- L5-19 *Mitigation Measures and Feasible Alternatives. The commenters state that “once the DEIR adequately evaluates the project’s significant air safety impacts, it must evaluate all potentially feasible mitigation measures and feasible alternatives to lessen or avoid such impacts.” The commenters note that Mitigation Measure 3.7-3 addresses hazards to aviation only during construction, and not operation. The commenters also state that the DEIR does not address that the WTGs can result in radar interference, even in the daytime. The commenters state that the DEIR must consider all mitigation solutions.*

Commenters are incorrect. The DEIR has been sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated. The allegation that the DEIR fails to adequately analyze the environmental impacts of the project related to aerial safety is addressed in responses L5-8, L5-13, and L5-14 above. Results of the supplemental cumulative impact studies conducted by Westslope Consulting (2018a) are described in the Letter L5a-1 Response, and confirmed by the FAA DNHs for the Solano 4 Wind Project that the project “would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft” and “would not be a hazard to air navigation” provided the wind turbines are marked/lighted in accordance with FAA Advisory Circular 70/7460-1 L Change 2, Obstruction Marking and Lighting. Mitigation Measure 3.7-3 *Mark and light wind turbine generators during construction* requires SMUD “To ensure proper conspicuity of turbines at night during construction, all WTGs shall be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on.” Regarding operation, as a condition of the FAA’s DNH, safety lighting would be incorporated into the design of the WTGs using an aircraft detection system; and compliance with this FAA regulation obviates the need for additional mitigation. Please also refer to FEIR Appendix B (FAA DNHs) and Master Response *Safety Concerns Related to Project Siting*. No revisions to the mitigation measures as presented in the DEIR are necessary.

L5-20 The DEIR fails to consider Wind Turbine Radar Interference Mitigation (WTRIM). The commenters state the DEIR fails to consider the WTRIM pilot mitigation program taking place at Travis AFB.

Under a Memorandum of Understanding signed in 2014 and building off the successful Interagency Field Test and Evaluation (IFT&E) of Wind Turbine-Radar Interference Mitigation Technologies, federal agencies established the WTRIM Working Group to address these conflicts. SMUD has closely followed WTRIM, provided data at their request, and attended WTRIM meetings. WTRIM is planning continued infill radar testing at Travis AFB (pers. comm. with Michael Lesmerises and Arthur G. Avedisian, C Speed¹); however, after testing the system will need to be certified with the FAA, go through procurement, and then be installed and implemented. Certification requirements are being developed but use of infill radar is expected to require many additional years to approve and install. The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (OEERE) recommends early coordination with the FAA, National Oceanic and Atmospheric Administration, Department of Homeland Security, and U.S. Department of Defense (DOD) during the siting process to help prevent an interference issue long before a wind plant is built. As described in the Westslope letter response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson, SMUD applied to the FAA and DNHs were issued by the FAA for the Solano 4 Wind Project originally on February 1, 2019, and after further DOD and FAA review, were recently extended on January 28, 2021. The extension process resulted in the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the DOD Military Aviation and Installation Assurance Siting Clearinghouse (the "DOD Siting Clearinghouse") mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations (Military Aviation and Installation Assurance Siting Clearinghouse, accessed 2021). The DOD Siting Clearinghouse was established under direction of the United States Congress per the National Defense Authorization Act for Fiscal Year 2011. The result of the MRT review was a conclusion by the 60th Air Mobility Wing of "[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations" and a conclusion by the DOD Siting Clearinghouse that Solano 4 Wind Project "will not present an adverse impact to military operations." (Simmons, 2021; Sample, 2021). Additionally, after modeling the potential impacts the FAA issued DNHs stating the Solano 4 Wind Project turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation." Travis AFB has served and

¹ John Cutting and Matthew Seitzler of SMUD had personal communication with Michael Lesmerises and Arthur G. Avedisian, C Speed on February 12, 2021. C Speed, LLC is a high-end supplier of custom software, electronics, and contract engineering solutions specializing in Embedded & Application Software, High Performance Analog & Digital Systems, and Signal Processing for industrial, military, medical, test & measurement, and other applications. They are supporting the infill radar effort for the U.S. Air Force.

continues to serve as an excellent source of information for the United States government and the wind industry in understanding the effects that multiple wind projects can have on a DASR and the display system used by the air traffic controllers, the Standard Terminal Automation System (STARS), at the Travis AFB Radar Approach Control (RAPCON) facility. Travis AFB and the wind projects in the Collinsville-Montezuma Hills Wind Resource Area (WRA) area also served as an excellent source of information in determining how to manage or lessen the effects of wind turbines for a DASR and STARS air traffic control systems configuration. Part of this work was conducted under Cooperative Research and Development Agreement (CRADA) No. 10-002 in collaboration with Travis AFB, Westslope Consulting, LLC (Westslope), and three wind project developers including SMUD (Air Mobility Command, 2010; United States Transportation Command Cooperative Research and Development Agreement, 2010). SMUD will continue to closely follow the progress of the WTRIM.

Please also see the results of initial supplemental cumulative impact studies conducted by Westslope Consulting (2018a) and Capitol Airspace (2018a) that are discussed in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson (specifically response to L5A-6 comment). Also, please see responses L5-8, L5-13, and L5-14 above and Master Response *Safety Concerns Related to Project Siting*. No changes to the language in the DEIR are necessary.

L5-21 Construction Impacts and Mitigation. The commenters state that it is impossible to know whether Measure 3.7-3 would actually reduce impacts to a less-than-significant level because the DEIR fails to describe the nature and extent of the project's construction impacts or how the impact would be lessened with implementation of the measure. The commenters cite case law.

Please see responses L5-8, L5-13, and L5-14 above and Master Response *Safety Concerns Related to Project Siting*.

Also, please see the results of the supplemental cumulative impact studies conducted by Westslope Consulting (2018a) and Capitol Airspace (2018a) that are included in Appendix A of this FEIR and discussed in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson (specifically response to L5A-6 comment). The studies and analysis provided are adequate and the DEIR's conclusions are backed by substantial evidence. Moreover, the case law cited in the comment is distinguishable, as here SMUD undertook an analysis of aeronautic safety issues, which are not quantifiable as was the case with regard to the energy impacts addressed in *Ukiah Citizens for Safety First v. City of Ukiah* (2016) 248 Cal.App.4th 256, 264. Measure 3.7-3 is based on requirements from the FAA that wind turbines are marked/lighted in accordance with 'FAA Advisory

Circular 70/7460-1L Change 2, Obstruction Marking and Lighting’. This is a common and effective mitigation measure for addressing possible collision hazards. The discussion adequately describes how the impact would be lessened with implementation of the measure and states, “To ensure proper conspicuity of turbines at night during construction, all WTGs shall be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting shall be relocated to the uppermost part of the structure.” To SMUD’s knowledge there have been no reported incidents of aerial collisions in this region. The project proposes to replace existing turbines, and the baseline for the project includes a fully developed wind resource area. No revisions to the language in the DEIR are necessary.

L5-22 Point 4. The DEIR fails to adequately analyze or mitigate the project’s significant cumulative impacts. The commenters discuss CEQA guidelines and cite case law regarding analysis of cumulative impacts. The commenters refer to the report by Dr. Johnson. The commenters contend the DEIR does not analyze cumulative impacts in a manner required by CEQA, but relies entirely on the FAA’s NHD (DNH).

The FAA conducted modeling of the issues under its jurisdiction, including cumulative impacts, and the DNHS it issued for the project turbines each conclude that the “*cumulative impact of the proposed structures*, when combined with other proposed and existing structures, is not considered to be significant” (emphasis added).

Moreover, SMUD hired Westslope Consulting, LLS to conduct a cumulative study for the Solano 4 Wind Project (Westslope 2018a). The study is titled SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts dated September 6, 2018 and can be found in Appendix A of this FEIR. The cumulative study includes the following conclusions:

- Solano 4 East and West projects will replace 23 existing V47 wind turbines that are currently interfering with the Travis AFB DASR with either 22 136-meter WTGs or 19 150-meter WTGs.
- The 150-meter wind turbines for the Solano 4 East will negate the Pd drop over the Wind Resource Area as a result of the Solano 4 West 150-meter wind turbines. There would be no material difference to Travis AFB radar operations compared to the existing baseline conditions and therefore the Solano 4 Wind Project would not contribute to a cumulative impact.
- False targets are not expected to be significant and should be manageable for Solano 4 Wind Project turbines.

- No impacts to the secondary radar co-located with Travis AFB DASR.

SMUD made every effort to find a wind project configuration for the Solano 4 Wind Project to avoid or minimize the effects of the project on the DASR and on the air traffic controllers' displays in STARS. This effort and the findings of those efforts are described in more detail in the Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson.

Also, please see response L5-8 above and Master Response *Safety Concerns Related to Project Siting*. No revisions to the language in the DEIR are necessary.

L5-23 Point 5. The DEIR fails to adequately evaluate alternatives to lessen or avoid the project's significant impacts. The commenters discuss CEQA guidelines for alternatives analysis and cite case law.

SMUD needs new renewable and carbon-free resources to meet California's mandate for renewable procurement (60% by 2030)² and to meet its Board directed goals. SMUD's Integrated Resource Plan (IRP), adopted by its Board in 2018, guides decisions on future resource developments, and lays out a pathway to achieve a Net Zero greenhouse gas (GHG) emissions goal by 2040 through investment in electrification while significantly expanding renewable and carbon-free resources in its portfolio.³ In July 2020, SMUD's Board declared a climate emergency and adopted a resolution calling for SMUD to take significant and consequential actions to eliminate its greenhouse gas emissions by 2030, and directed staff to develop a plan to achieve this goal. SMUD's 2030 Zero Carbon Plan (2030 Plan)⁴ has been approved by the Board and calls for the addition of up to 2,300 MW of new renewables and 1,100 MW of batteries by 2030 – more than double the amount SMUD was planning for in its 2018 IRP. The 2030 Plan calls for maximizing new cost-effective utility-scale renewables within our service territory (up to 1,500 MW utility solar), but also requires SMUD to add additional resources that it does not have locally, such as wind and geothermal. Resource decisions will be made based on a thorough analysis of market ready and available carbon-free resource options, while evaluating financial impacts, resource type and generation profile, reliability, and sustainability. SMUD's IRP process has resulted in a diverse portfolio of renewable resources, which today include small hydro, biomass and biogas, wind, solar, and geothermal.

² Sen. Bill No. 100, approved by Governor, Sept. 10, 2018.

³ <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/Integrated-Resource-Plan.ashx>.

⁴ <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/ZeroCarbon/2030-Zero-Carbon-Plan-Technical-Report.ashx>.

Resource diversity is coveted in resource planning, as it results in varying generation profiles, costs, and avoiding over investing in one generation type that may result in diminishing returns as we have seen with solar development in California. Wind generation, such as that produced in the Solano wind area, is beneficial from a resource diversity perspective as its generation profile can provide more output during peak hours than solar generation, and this means it has greater value in meeting energy demand. SMUD currently owns or contracts for about 280 MW of wind resources in the Solano wind area, which is just a fraction of the total installed capacity at this high-quality wind site. With very few high-quality wind sites left undeveloped in California, the Solano area provides a valuable wind resource that is well positioned to help the State and SMUD achieve their environmental goals.

As only few high-quality wind sites remain undeveloped in California, future wind options beyond the Solano site are likely out of state. Out of state resources are more expensive and require costly transmission for delivery to SMUD's load. Other renewable technologies (such as biomass, geothermal, Biomethane/Biogas, geothermal, ocean wave power, tidal power, etc.) have either limited in-state supply or have not been fully developed technologically for market or are extremely expensive. Further, RPS guidelines must be adhered to, which limits the resource pool further. For example, RPS guidelines are prohibitive on out-of-state biomethane use for meeting renewable mandates, limiting future consideration of this resource.

Through our IRP process, we have carefully considered the variety of resource options and have decided that developing additional wind generation at Solano and utilizing land already owned by SMUD will serve both RPS and SMUD's GHG reduction goals in a reliable, environmentally sustainable, and cost-effective manner. In order to meet the State's aggressive RPS and our aggressive GHG reduction goals, we will need to rely on the myriad of proven and available carbon-free resources. In addition, given the current level of technology for—and uncertainty around—evolving alternatives, this project is considered a critical component of SMUD's strategy. If anything, unproven alternatives will also be necessary to meet SMUD's ambitious goals even with the Solano 4 Wind Project.

Also, the need for additional alternatives to address aerial safety are not necessary since there is no significant effect in light of the Westslope (2018a) radar cumulative impact modeling study that determined there would be a negligible impact over baseline to the associated Travis AFB radar systems resulting from installation of twenty-two (22) 136M turbines following removal of the existing 23 WTGs, and a net zero impact for installation of nineteen (19) 150M turbines following removal of the existing 23 WTGs compared to the existing baseline conditions, and therefore the Solano 4 Wind Project would not contribute to a cumulative impact.

Please refer to Letter L5a-1 Response to the Shute, Mihaly, & Weinberger LLP Exhibit 1, memorandum from Dr. Jerry Johnson and Appendix B of this FEIR (FAA DNHs). No revisions to the language in the DEIR are necessary.

L5-24 DEIR only offers one project alternative. The commenters contend that the DEIR only offers one project alternative that may increase radar interference.

Please see responses to L5-23 and L5-25.

L5-25 CEQA guidelines and case law regarding alternatives. The commenters discuss CEQA guidelines and case law regarding alternatives, and that the DEIR presents only one alternative that would increase the project's significant impacts. The commenters suggest that the DEIR does not offer a reasonable range of alternatives.

CEQA guidelines and case law are noted. CEQA does not require an EIR to consider every conceivable project alternative and the selection of alternatives is subject only to a rule of reason. (Guidelines, § 15126.6(a), (f).) To satisfy CEQA, the EIR's range of alternatives must examine in detail only those that would feasibly attain most of the basic project objectives while avoiding or substantially lessening any of a project's significant effects. (Guidelines, § 15126.6(a), (f).) In particular, an EIR need not include alternatives that will not implement fundamental project objectives or would change the basic nature of the project. (Guidelines, § 15126.6(a), (c); *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165 [finding evaluating reduced-export alternative not required as it conflicted with project's objectives of improving water supply reliability and providing water for beneficial uses].) Further, an EIR need not address proffered alternatives that do not provide distinct environmental advantages over the project or is already within the range of alternatives addressed in the EIR. (Guidelines, § 15126.6(b); *Village Laguna of Laguna Beach, Inc. v. Bd. of Supervisors* (1982) 134 Cal.App.3d 1022, 1028–1029 [rejecting call to evaluate alternative falling within the densities already included in the EIR]; *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912, 929–930 [rejecting call for reduced-size store alternative because alternative would not reduce significant impacts of the project].)

The DEIR considered two project alternatives in detail: the No Project Alternative and Reduced Turbine Height Alternative. The latter alternative was responsive to one of the primary issues raised by the ALUC, turbine height. Ultimately, while Reduced Turbine Height Alternative would lessen one impact the remaining impacts would be similar to, but slightly greater than, those of the proposed project, so the DEIR concluded that the proposed project would be the environmentally superior alternative. Such a limited range of alternatives is appropriate where, as here, there are so few variations or significant impacts of the project. (See, e.g. *Marin Municipal Water Dist. v. KG Land Cal. Corp.* (1991) 235 Cal.App.3d 1652, 1666 [upheld EIR that evaluated two

alternatives—a no project alternative and conservation alternative].) No additional alternatives are necessary to adequately evaluate the project and assess its impacts in relation to other policy considerations (including satisfying the objectives of the project). The commenter does not provide evidence on how additional alternatives would enhance the analysis or result in potentially different impact conclusions. No revisions are necessary. Please also see response to L5-23 above.

L5-26 DEIR fails to provide a reasonable range of alternatives. The commenters contend that the DEIR fails to provide a range of alternatives as required by CEQA by identifying the proposed project as the environmentally superior “alternative.” The commenters suggest alternatives that could and should have been considered (alternative configuration of WTGs, alternative phasing). The commenters claim SMUD project objectives are too narrow and cite case law.

Please see responses to L5-23 and L5-25 above. No changes are necessary.

L5-27 Renewables Portfolio Standards (RPS) renewables are wide ranging in terms of location and type of project. The commenter describes a range of RPS “eligible renewable sources” in North America including biodiesel, biomass, biomethane (including digester gas, and landfill gas), fuel cells using renewable fuels, geothermal, hydro-electric, municipal solid waste combustion and conversion, ocean wave, ocean thermal, solar, tidal current, and wind.

The comment is noted. Please see responses to L5-23 and L5-25 above. Other than the rule of reason, however, there is no categorical legal imperative or ironclad rule governing the nature or scope of the alternatives to be evaluated (Guidelines, § 15126.6(a), (f)). Indeed, an EIR need not consider “every conceivable alternative” to the proposed action. (*In re Bay-Delta* (2008) 43 Cal.4th 1143, 1162–1163). In particular here, SMUD was not required to consider alternatives that would fundamentally alter the essential nature of the project, or that the commenter has not shown provide any environmental advantages over the proposed project. A different project at a different location would also result in potential impacts to diverse resources and attempting to analyze them in the EIR would be speculative. Nevertheless, Section 6.2.3 of the DEIR does provide a discussion of why offsite alternatives and alternative technologies were considered but rejected from further consideration. The comment also fails to acknowledge that SMUD is already undertaking several initiatives to help meet its RPS and GHG reduction goals; the Solano 4 Wind Project is essential part of that effort. As described above under response L5-23, SMUD’s 2030 Plan has been approved by the Board and calls for the addition of up to 2,300 MW of new renewables and 1,100 MW of batteries by 2030 – more than double the amount SMUD was planning for in its 2018 IRP. The 2030 Plan calls for maximizing new cost-effective utility-scale renewables within our service territory (up to 1,500 MW utility solar), but also requires

SMUD to add additional resources that it does not have locally, such as wind and geothermal. SMUD analyzed the resources to meet the 2030 goal and concluded that more wind than the Solano 4 Wind project would be needed to achieve the goal, as well as additional technologies that are either currently unknown or are not ready for large-scale adoption due to price, reliability or other factors. No changes in the DEIR are necessary.

L5-28 Temporal Alternatives. The commenter argues that the Renewables Portfolio Standard would not require the project's construction right now, but that it requires procurement of renewables that will overall be a specified percentage of annual retail sales by specified target dates. The commenter states there are numerous other alternatives available to SMUD including "building something else, somewhere else, at some other time and CEQA requires consideration of those alternatives."

Please see response to L5-23 above. No changes are necessary.

L5-29 Meeting SMUD's Net Zero Goal. The commenter states that according to SMUD's Policy SD-9, SMUD meets its Net Zero goal via other methods (investments in vehicles and building electrification and energy efficiency); and in meeting GHG reduction goals, SMUD shall emphasize local and regional environmental benefits. The commenter argues that "such regional and environmental benefits would be furthered by ensuring consistency with the LUCP." Lastly, the commenter states that "an alternative need not meet every project objective or be the least costly in order to be feasible."

Please see response to L5-23 above. SMUD has concluded that it will not meet its project and system-level objectives (Net Zero) without providing the additional renewable energy capacity provided by the Solano 4 Wind Project. As described in the DEIR section 6.3.2, the Reduced Turbine Height Alternative would introduce 27 WTG compared to the 22 WTG for the project. As such, all construction activities and resulting criteria air pollutants would be similar to, but slightly greater than, those of the project. Further significant impacts of the project can be avoided without having to resort to any project alternatives. No changes are necessary.

L5-30 The DEIR must be recirculated. The commenter states CEQA guidelines regarding the circumstances that require recirculation of a DEIR including (1) the addition of significant new information to the EIR after public notice is given of the availability of the DEIR but before certification, or (2) the DEIR is so "fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." The commenter argues that both circumstances apply here and that the DEIR "repeatedly understates and does not provide the relevant information regarding the project's significant land use and air safety impacts." The commenter states that the DEIR relies exclusively on the FAA's NHD (DNH) and assumes without analysis that minimalistic mitigation measures would effectively reduce the project's impacts on air safety and land use. The commenter contends that SMUD must prepare a revised EIR that would include substantial new information, including the information included in the

letter. The commenter reiterates that “it is mandatory and imperative that SMUD obtain a consistency determination from the ALUC prior to proceeding with the Solano 4 Wind Project.”

SMUD disagrees. The DEIR is sufficiently detailed so that the public and decisionmakers are properly informed and can conduct meaningful evaluation of the way project impacts were avoided, minimized, or mitigated. The DEIR did not rely solely on the FAA’s DNHs, which were themselves supported by FAA modeling of all aerial navigation and safety impacts under that agency’s jurisdiction and its conclusions are supported by that additional substantial evidence in the DEIR and this FEIR. While additional information has been provided in this FEIR and its appendices, that information merely amplifies and clarifies the evidence and findings in the DEIR. In that respect, recirculation is unwarranted. (CEQA Guidelines, § 15088.5(a)-(b); *San Francisco Baykeeper, Inc. v. Cal. State Lands Com.* (2015) 242 Cal.App.4th 202, 224–225.) Please also see the Master Response *Land Use* for an explanation of why the project is exempt from ALUC review. Also, please see response L5-1 above. No revisions are necessary and recirculation is not required.

This response to the memorandum from Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC dated August 6, 2019 was written in collaboration with Geoff Blackman, Owner/Principal Westslope Consulting, LLC and Joe Anderson, Director of Airspace Consulting Capitol Airspace Group, LLC. Westslope Consulting and Capitol Airspace Group provided a joint letter dated March 30, 2021 addressing each of the points raised by Dr. Johnson, which is included in Appendix C of this Final EIR.

Letter	Dr. Jerry Johnson, Director of Engineering
L5a-1	Regulus-Group, LLC
Response	August 6, 2019

L5a-1 The commenter addresses air safety impacts in the DEIR and states that it is well known that utility scale wind turbines impact primary surveillance radar systems when the turbines are located within the line of sight of the radar. The commenter notes that the existing turbines in the proposed project area have created turbine radar interference at Travis Air Force Base (AFB). To adjust, the AFB had to move/lose a circling approach. Per the commenter, the AFB would like to reclaim the lost airspace.

As the Draft EIR acknowledges, utility scale wind turbines within radar line-of-sight of a primary surveillance radar, such as the Travis AFB digital airport surveillance radar (DASR), could have an adverse effect on radar performance (see DEIR, page 3.7-14). In fact, Travis AFB has served and continues to serve as an excellent source of information for the United States government and the wind industry in understanding the effects that multiple wind projects can have on a DASR and the display system used by the air traffic controllers, the Standard Terminal Automation System (STARS), at the Travis AFB Radar Approach Control (RAPCON) facility. Travis AFB and the wind projects in the Collinsville-Montezuma Hills Wind Resource Area (WRA) also served as an excellent source of information in determining how to manage or lessen the effects of wind turbines for a DASR and STARS air traffic control systems configuration. Part of this work was conducted under Cooperative Research and Development Agreement (CRADA) No. 10-002 in collaboration with Travis AFB, Westslope Consulting, LLC (Westslope), and three wind project developers including the Sacramento Municipal Utility District (SMUD) (Air Mobility Command, 2010; United States Transportation Command Cooperative Research and Development Agreement, 2010). It should also be noted that while there would be negligible effects on the DASR, the Monopulse Secondary Surveillance Radar (MSSR), which is the secondary surveillance radar that is co-located with the DASR and is the main radar used for air traffic control by the base, was shown to not be affected by wind turbines. The MSSR interrogates transponder equipment on board the vast majority of aircraft operating in and around the Travis AFB RAPCON's airspace.

Secondary surveillance radar systems, such as the MSSR, are less susceptible to interference from wind turbines than primary surveillance radar. Unlike primary surveillance radar that depends on reflected energy to discern aircraft, secondary surveillance radar relies on, in general terms, two-way communication with aircraft via operating transponders. This process is cooperative whereby the secondary surveillance radar transmits a set of pulses at one frequency to interrogate transponders, then receives and processes replies from operating transponders at another frequency. Because of the use of different transmit and receive frequencies, secondary surveillance radar is not as susceptible to the effects of clutter that interfere with the performance of primary surveillance radar. Clutter is unwanted radar returns from the ground, rain or other precipitation, buildings, antenna towers, transmission lines, wind turbines, vehicular traffic, and birds. Some publicly available United States government research has considered the effects of wind turbines on secondary surveillance radar. A Department of Homeland Security (DHS) funded study conducted by JASON found that “[s]econdary (i.e., transponder, or “beacon”) tracks were rarely affected” by wind farms. JASON is a group of the nation’s top scientists that advises the United States government (JASON, The MITRE Corporation, 2008). In addition, the Department of Energy, Department of Defense (DOD), DHS, and the Federal Aviation Administration (FAA) sponsored flight trials conducted by Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL) and Sandia National Laboratories as part of an Interagency Field Test and Evaluation (IFT&E) program noted that “primary surveillance radars are severely impacted by wind turbines while the beacon transponder-based secondary surveillance radars was not affected by wind turbines.” (Sandia National Laboratories, 2014).

The below excerpts are from the Solano 4 Wind Project (Solano 4) Determinations of No Hazard (DNHs) issued by the FAA originally on February 1, 2019, and after further DOD and FAA review, were recently extended on January 28, 2021.

“Simply being “seen” by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.”

“The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines.

Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.”

“However, this would not cause an unacceptable adverse impact on ATC operations at this time.”

“The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.”

“Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.”

The extension process resulted in the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the DOD Military Aviation and Installation Assurance Siting Clearinghouse (the “DOD Siting Clearinghouse”) mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations (Military Aviation and Installation Assurance Siting Clearinghouse, accessed 2021). The DOD Siting Clearinghouse was established under direction of the United States Congress per the National Defense Authorization Act for Fiscal Year 2011 (H.R.6523, 2011). The result of the MRT review was a conclusion by the 60th Air Mobility Wing of “[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations” and a conclusion by the DOD Siting Clearinghouse that Solano 4 “will not present an adverse impact to military operations.” (Simmons, 2021; Sample, 2021).

When evaluating the effects of wind turbines on radar, it is important to distinguish between effects and operational impacts. Effects do not always translate into operational impacts (i.e., a substantial adverse effect). As a result of early consultation with Travis AFB and Solano County’s Windfarm Re-Power Group dating back to April 21, 2016, SMUD and Westslope undertook a substantial effort to identify a wind project configuration—considering different wind turbine layouts, numbers of wind turbines, and wind turbine models—for Solano 4 to ensure there would be no additional effects as a result of the project on the DASR and on the air traffic controllers’ displays in STARS. In the spirit of collaboration, the results of multiple radar cumulative impact studies were presented to Travis AFB prior to filing the Solano 4 wind turbines with the FAA (Westslope, 2018a).

Westslope's studies indicate that removing and replacing 23 existing wind turbines with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter modern wind turbines will have no material difference to the DASR or on the air traffic controllers' displays in STARS.

The Solano 4 wind turbines are located outside of Travis AFB circling approach areas and will have no effect on the base's published visual flight rules (VFR) operations or on instrument flight rules (IFR) operations (U.S. Department of Transportation, 2016, 2018). Solano 4 will replace 23 existing Vestas V47 wind turbines, which currently interfere with the Travis AFB DASR, with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter wind turbines. Because construction of Solano 4 will result in fewer overall wind turbines and the proposed wind turbines will have no effect on the base's published VFR or IFR operations, Solano 4 will have no material difference on the performance of the DASR and STARS configuration compared to current conditions and will not impact current RAPCON air traffic operations. Further, the secondary surveillance radar co-located with the DASR, which is the main radar used for air traffic control, will not be affected. These conclusions regarding impacts are supported by the MRT process and FAA's DNHs that states that the Solano 4 wind turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation."

With regards to the desire of Travis AFB to "reclaim airspace," it should be noted that the existence of extensive wind energy development in the Montezuma Hills is an existing condition and thus would be considered part of the baseline against which the potential impacts of the Solano 4 Wind Project are evaluated. It is well settled that ongoing activities—here, operations of the existing wind turbines—are part of the existing conditions baseline. (See, e.g., *Communities for a Better Env't v South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310; *Mount Shasta Bioregional Ecology Ctr. v County of Siskiyou* (2012) 210 Cal.App.4th 184, 200; *Citizens for E. Shore Parks v State Lands Comm'n* (2011) 202 Cal.App.4th 549 [lease renewal for marine terminal serving an oil refinery included the terminal and its ongoing operations in its existing conditions baseline].) It is not the purpose of the EIR or any proposed mitigation to ameliorate existing conditions. Rather, the purpose of the Draft EIR is to address the nature and extent of impacts to the extent resulting from the proposed project and to offset those impacts.

L5a-2 The commenter addresses the potential for additional wind turbines by making several points. Point one per the commenter is that the DEIR does not include information needed to inform decision makers and the public about the scope of the project's impacts. The commenter notes that the DEIR refers to an FAA aeronautical study conclusion that navigable airspace is not affected by turbine operation, but the DEIR does not mention that the study also reports that quality

and availability of radar signals would be affected. The commenter further notes that when wind turbine radar interference (i.e., clutter) is high, air traffic controller workloads can increase due to the creation of track duals (false tracks), which increase the need for more coordination between controllers and pilots and greater distances among aircraft, and may impact aircraft maneuvers.

The DEIR focused on the conclusion of the aeronautical study process rather than FAA's initial findings. As pointed out by Dr. Johnson, the FAA's initial findings state that the "[t]he proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines." This language is standard language used by the FAA for any wind turbine that is within line-of-sight of a primary surveillance radar and is used to inform the proponent of a wind project that further study is required to determine whether these effects could result in operational impacts.

After in-depth study, at the request of SMUD, the FAA determined that Solano 4 "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation." Further, the DNHs state that the aeronautical studies "considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact" resulting from Solano 4 when combined with the impact of other existing structures.

Regarding "track duals," Dr. Johnson appears to be confusing this term with "false targets." Track duals and false targets are two different effects. It is also possible that Dr. Johnson may be confusing track duals with a phenomenon identified during testing of in-fill radar ongoing at Travis AFB at this time.

While false primary targets are possible, replacing the 23 existing wind turbines with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter modern wind turbines will have no material difference in the number of false primary targets reported by the DASR or in the number of the false primary tracks on the air traffic controllers' displays in STARS. After construction, system optimization, including updating the range-azimuth gate map in the DASR, will address the difference in the location and number of wind turbines. In other words, the conditions under the Solano 4 Wind Project would not be any different than the current condition. Thus, the DEIR did not identify a significant impact and no mitigation is required.

Further, the Project will not adversely affect safety through any indirect increase in the workload of individual traffic controllers. As discussed in detail by Mr.

Geoff Blackman with ALUC Commissioners at the ALUC's May 2021 Commission Meeting, this is due to the efforts of SMUD and its consultants to eliminate a net increase in radar interference impacts over baseline through design, number, and location of wind turbines.¹ The FAA concurred that there will be no unacceptable adverse impact to air traffic controller operations at this time (Federal Aviation Administration Determination of No Hazard to Air Navigation, Aeronautical Study No. 2018-WTW-13388-OE to 2018-WTW-13406-OE).

L5a-3 The commenter's second point is that while the DEIR indicates that the wind turbines would not be a hazard to air navigation if the turbines are properly painted and lighted, these are measures for obstruction avoidance and would not mitigate the turbines' interference with radar or air traffic control.

Per the FAA issued DNHs, Solano 4 "would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft" and "would not be a hazard to air navigation" provided the wind turbines are marked/lighted in accordance with FAA Advisory Circular 70/7460-1 L Change 2, Obstruction Marking and Lighting. This advisory circular provides the FAA's standard for marking and lighting to ensure the appropriate daytime and nighttime conspicuity so that pilots can visibly see and avoid wind turbines. Please see the Master Response for additional information on the FAA process and regulations.

L5a-4 The commenter's third point is that the DEIR does not mention that Air Traffic Control (ATC) Minimum Vectoring Altitudes (MVAs) for the turbine area would need to be increased. The commenter notes that the FAA has identified this as an adverse effect.

During the aeronautical study process, the FAA's prime objective is to ensure the safety of air navigation and the efficient utilization of navigable airspace (U.S. Department of Transportation, 2019a). As many as ten different government offices take part in each study, including: the FAA's Office of Airports, Instrument Flight Procedures Impact Team, Flight Standards, Technical Operations, and Frequency Management, and the United States Air Force, United States Navy, United States Army, DHS, and the DOD. The FAA utilizes the information provided by each office, as well as defined metrics, to determine whether or not the proposed wind turbines would be hazardous (U.S. Department of Transportation, 2019b). Please see the Master Response for additional information on the FAA process.

During the review of Solano 4, the FAA identified that the proposed wind turbines would have an adverse effect on a minimum vectoring altitude (MVA) sector. A MVA defines the lowest altitude that air traffic controllers can normally

¹ (Solano County ALUC Hearing Transcript, May 20, 2021, at pp. 71-72.

issue radar vectors to aircraft and is based on obstacle clearance. Specifically, the FAA identified an effect on Sector MCC_B which is utilized by the air traffic controllers at Northern California Terminal (NCT) Radar Approach Control (TRACON). To address this effect, the FAA requires Form 7460-2, Part 1, Notice of Actual Construction or Alteration to be submitted at least 60 days before the start of construction so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary. By SMUD e-filing FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration at least 60 days before the start of construction, the FAA would take appropriate action to amend the affected procedure(s) and/or altitude(s), if necessary.” The FAA will modify Sector MCC_B by increasing the MVA from 1,700 to 1,800 feet above mean sea level (MSL). This increase ensures the appropriate obstacle clearance and, as a result, maintains safety (U.S. Department of Transportation, 2018). This amendment to modify the sector by increasing the MVA to 1,800 feet MSL removes the adverse effect on the MVA sector. Lastly, Northern California TRACON confirmed that this would not have an operational impact on providing radar vectoring services. For these reasons, the effect on a MVA sector will not result in the degradation of safety or efficiency. Mitigation measure 3.7-3 in the DEIR states that “SMUD will e-file FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration at least 60 days before the start of construction, so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary.” Thus, the DEIR did not identify any significant impacts related to air traffic safety and no additional mitigation is required.

L5a-5 The commenter’s fourth point is that while the DEIR acknowledges that the project could have potentially significant adverse impacts, it does not provide enough information about the impacts for readers to comprehend them. The commenter states that the DEIR should 1) discuss objective metrics regarding the effects on radar performance, 2) compare clutter tracks over the wind turbine area with the additional clutter that would be generated by the new turbines, 3) compare expected dual tracks with real targets and provide metrics such as length measured over a span of time, and 4) discuss increased operator workload (controllers and pilots) due to clutter and provide metrics regarding this.

As stated above, SMUD undertook extensive efforts to identify a wind project configuration for Solano 4 to ensure there would be no additional effects as a result of the project on the DASR and on the air traffic controllers’ displays in STARS. Results of an initial cumulative impact study conducted by Westslope, employing the same method verified under CRADA No. 10-002 and using primary probability of detection (Pd) as a metric, showed that the 22 136-meter rotor diameter wind turbines will result in a 0.1 percent overall decrease in the primary Pd over the Collinsville-Montezuma Hills WRA. A subsequent cumulative impact study for 19 150-meter rotor diameter wind turbines at the proposed locations showed no drop in the primary Pd. In other words, the

conditions under Solano 4 will result in no material difference on the performance of the DASR and STARS configuration compared to existing conditions. These findings were presented to Travis AFB on September 6, 2018 and were used to support the current layouts proposed for the Solano 4 wind turbines. Please see Appendix A of this FEIR for copies of the specific technical studies conducted.

As determined by the supplemental Basic Radar Line-of-Sight Study (Westslope 2018b) and the FAA as stated in the Solano 4 DNHs, the turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. Per the FAA Solano 4 DNHs, the proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.” The FAA DNHs conclude, “[h]owever, this would not cause an unacceptable adverse impact on ATC operations at this time.”

The number of false primary targets reported by the DASR and the number of false primary tracks presented on the STARS’ displays were also considered as a metric during these studies; however, based on Westslope’s experience with the Travis AFB DASR and STARS, as well as other similar facilities, and the fact that Solano 4 will replace 23 existing wind turbines with 22 or 19 new wind turbines, Westslope expects no material difference in the number of false primary targets out of the DASR or the number of false primary tracks on the STARS’ displays. As stated above, the result of the MRT review was a conclusion by 60th Air Mobility Wing Commander of “[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations” and a conclusion by the DOD Siting Clearinghouse that Solano 4 “will not present an adverse impact to military operations.” The FAA determined that the proposed Solano 4 wind turbines “would not cause an unacceptable adverse impact on ATC operations at this time” and “would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.” Further, SMUD received extensions for the 19 DNHs for Solano 4 Wind Project on January 28, 2021, as requested. Also, please see the Master Response for additional information about SMUD’s coordination efforts with Travis AFB.

L5a-6 The commenter’s fifth point is that the DEIR does not discuss other potentially feasible means to mitigate the project’s adverse impacts, such as a Pilot Mitigation Program at Travis AFB that is studying how in-fill radar systems could mitigate turbine radar interference, or an effort that is underway to develop radar processing algorithms that could reduce clutter on air traffic control screens. The commenter

notes that these are not yet proven or certified for use, and so the only way to limit turbine impacts on radar systems is to locate the turbines beyond the line-of-sight of the radar.

As discussed above and in the cumulative impact studies conducted by Westslope, the Solano 4 wind turbines will result in no material difference on the performance of the DASR and STARS configuration compared to existing conditions, and will not impact current RAPCON air traffic operations. Further, the secondary surveillance radar co-located with the DASR, which is the main radar used for air traffic control, will not be affected. These conclusions are supported by the FAA's DNHs that states that the Solano 4 wind turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation". Based on the analysis conducted, the DEIR concluded that there would be no significant impact to air traffic safety resulting from the project; therefore, exploration of further mitigation is not necessary. No changes to the DEIR are needed.



Gavin Newsom
Governor

STATE OF CALIFORNIA

Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Letter 6



Kate Gordon
Director

September 6, 2019

Ammon Rice
Sacramento Municipal Utility District
6201 S Street, MS H201
Sacramento, CA 95817

Subject: Solano 4 Wind Project Environmental Impact Report
SCH#: 2019012016

Dear Ammon Rice:

The State Clearinghouse submitted the above named EIR to selected state agencies for review. The review period closed on 9/5/2019, and the comments from the responding agency (ies) is (are) available on the CEQA database for your retrieval and use. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

Check the CEQA database for submitted comments for use in preparing your final environmental document: <https://ceqanet.opr.ca.gov/2019012016/2> . Should you need more information or clarification of the comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Resources Agency

6-1

Letter 6-1 Response	Scott Morgan, Director State of California Governor's Office of Planning and Research State Clearinghouse and Planning Unit September 6, 2019
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L6-1 Letter of Acknowledgement from the State Clearinghouse. The commenter states that this letter acknowledges that SMUD has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to CEQA.

SMUD notes the acknowledgement from the State Clearinghouse that they have complied with the State Clearinghouse's review requirements for draft environmental documents, pursuant to CEQA. No response is required.

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3 Corrections and Revisions to the Draft EIR

This chapter contains changes to the text of the Draft EIR in response to certain comments. These changes are generally referenced in the responses to comments in Chapter 2, or are provided to be consistent with changes referenced in Chapter 2. The changes are presented in the order in which they appear in the Draft EIR and are identified by Draft EIR page number. Text deletions are shown in ~~strikeout~~ and additions are shown in double underline. The changes identified below do not alter the conclusions of the EIR with respect to any of the significant impacts of the project and do not necessitate recirculation of the Draft EIR.

3.1 Revisions to the Project Description

In response to comment L4-3 from the Solano County Department of Resource Management, the Airport Land Use Commission (ALUC) has been added to Table 2-4 under “State” of the DEIR as follows:

Table 2-4. Other Agency Permits and Approvals Required for the Proposed Project

State		
State Water Resources Control Board	Clean Water Act Section 402, construction stormwater permit	Prevent discharge of construction-related pollutants to waters of the United States.
San Francisco Bay Regional Water Quality Control Board	Clean Water Act Section 401, water quality certification	Prevent the discharge of construction-related pollutants to waters of the United States.
California Department of Fish and Wildlife	Streambed alteration agreement	Allow the project to alter a bank or streambed located in California.
California Department of Transportation	Haul truck and overload permit	Permit oversize trucks to travel on local roadways.
<u>Solano County ALUC</u>	<u>ALUC consistency determination review is not required, but is advisory to SMUD</u>	<u>The consistency determination process is advisory only. On May 20, 2021, the ALUC determined that the project is inconsistent with the Travis Air Force Base Land Use Compatibility Plan (LUCP). SMUD Board of Directors is proposing to overrule the ALUC determination after a noticed public hearing, with the required number of votes of its Board members and after making the requisite findings under the State Aeronautics Act (SAA). The proposed decision and findings were circulated to ALUC and California Department of Transportation, Division of Aeronautics on July 2, 2021 as per the SAA process requirements.</u>

3.2 Revisions Clarifying Collection and Home Run Lines

The following minor revisions have been made to clarify reference to collection and home run lines and not transmission lines. The minor revisions in no way change the impact conclusions presented in the Draft EIR; therefore, recirculation of the EIR is not required.

Aesthetics (Chapter 3.1, page 3.1-35)

Mitigation Measure 3.1-1a: Design the Project to Avoid Aesthetic Impacts.

SMUD or its contractor shall consider topography when siting wind turbines and shall avoid major modifications to natural landforms or other characteristic parts of the landscape. The turbines shall be clustered or grouped to break up overly long lines of turbines. The turbines shall be similar in shape and size.

Each WTG shall be painted a uniform white or light-grey color, “RAL 7035” or similar, per manufacturer’s requirements. To minimize the structures’ reflectivity, the paint used shall have a gloss level that does not exceed 30 percent, or 60–70 gloss units,¹ as calculated by the manufacturer. The surfaces of all other structures (e.g., meteorology towers) shall be given low-reflectivity finishes with neutral colors to minimize the contrast of the structures with their backdrops.

Fewer, larger turbines shall be preferred over more, smaller turbines. Commercial messages and symbols shall be prohibited on wind turbines. Collection and home run lines shall be underground; no overhead collection or home run ~~transmission~~ lines shall be used.

To minimize ground disturbance, to the extent feasible, existing roadways shall be used to access turbine pads. All construction-related areas shall be kept clean and tidy, with construction materials and equipment stored in the construction staging and laydown areas and/or generally away from public view. SMUD or its contractor shall remove construction debris promptly at intervals of 2 weeks or less, at any one location.

Biological Resources (Chapter 3.3, page 3.3-2)

Between 2016 and 2019, numerous project-specific biological resources surveys were completed in the proposed project subareas, Solano 4 West and Solano 4 East, and along the electrical ~~transmission~~ home run lines that run northward and westward, respectively, from each subarea to the centrally located Russell Substation (Exhibit 2-2 in Chapter 2, “Project Description”).

Hazards and Hazardous Materials (Chapter 3.7, page 3.7-17)

Exposure of people or structures to the risk of wildfires

The project would place electrical ~~transmission~~ collection and home run lines underground to avoid potential for arcing lines to spark a fire. The WTGs are monitored by a SCADA which is able to monitor operating conditions and inform the operators of abnormal activity so actions can be taken to avoid overheating a WTG causing potential mechanical failure.

Hydrology and Water Quality (Chapter 3.8, page 3.8-8 and 3.8-9)

A portion of the Solano 4 West subarea is located within the Secondary Management Area. According to the Suisun Marsh Local Protection Program, the upland grasslands and cultivated lands of the Secondary Management Area provide habitat for marsh-related wildlife. More importantly, through their location and existing uses, they buffer the wetlands and lowland grasslands from the adverse impacts of both urban development and other upland land uses and practices incompatible with preservation of the marsh. The Suisun Marsh Preservation Act also identifies protected channels within the Suisun Marsh watershed and the watershed's overall boundaries. Although the Solano 4 West project subarea, the majority of the ~~transmission~~ collection line corridors, and a portion of the Solano 4 East subarea are within the Solano Marsh watershed, no protected channels intersect with any planned project components (Solano County 2018).

Cumulative Impacts (Chapter 4, page 4-4 and 4-5)

Visual changes during operation of the project, including the presence of taller WTGs would not be noticeable to residents, recreationists, and motorists in the area. The proposed WTGs would be slightly taller than the existing WTGs in the area but the number of WTGs would be reduced from current conditions. The mean height for the existing WTGs is 396 feet; the mean height for the largest of the WTGs proposed for the Solano 4 Wind Project is 591 feet. All ~~transmission~~ electrical collection and home run lines infrastructure associated with the project would be placed underground. Implementation of Mitigation Measures 3.1-1a and 3.1-1b would reduce potential visual effects. Therefore, the impact of the proposed project on scenic vistas and the visual character of the site and adjacent scenic roadways would be less than significant.

3.3 Revisions to Biological Resources

In response to comment L1-2, the following revisions have been made to Mitigation Measure 3.3-1a: Avoid and minimize impacts on California tiger salamander. The Draft EIR is revised as follows:

Mitigation Measure 3.3-1a: Avoid and minimize impacts on California tiger salamander. SMUD will implement the following measures to avoid and minimize potential construction impacts on California tiger salamander:

- A qualified California tiger salamander biologist (defined as an individual with 3 years of experience conducting surveys for California tiger salamander and habitat in the project region) will be present on-site to conduct monitoring during project construction and decommissioning activities that disturb surface soils within 250 feet of drainages or any other aquatic features identified as suitable for California tiger salamander (AECOM 2018b).
- ~~To the extent possible~~, SMUD will confine all project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander (AECOM 2018b). ~~To the extent it is not possible to limit~~

such activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander, the qualified biologist will perform a preconstruction survey within 48 hours before constructing project-related parking, storage areas, laydown sites, and equipment storage sites to ensure California tiger salamander are not present. If a California tiger salamander is found within the project area, SMUD will implement any actions necessary to avoid take of California tiger salamander including establishing appropriate buffer area and exclusion fencing in consultation with USFWS and/or CDFW. If after avoidance measure cannot avoid take, SMUD shall seek an Incidental Take Permit from USFWS and/or CDFW, as appropriate, and implement any measures specified therein to reduce chances of take and minimize and fully mitigate any incidental take (including the measures in this MM 3.3-1a).

- All steep-walled holes or trenches that are 1 foot deep or greater and located within 250 feet of aquatic habitat that is suitable for CTS will have at least one escape ramp constructed of earthen fill or wooden planks. All such holes or trenches will be completely covered before sunset of each workday using boards or metal plates that are placed flush to the ground, and will be inspected before the start of daily construction activities.
- To prevent inadvertent entrapment of California tiger salamanders during project construction, maintenance, and decommissioning, all construction pipes, culverts, conduits, and other similar structures stored on-site overnight will be inspected before the structure is buried. Plastic monofilament netting will not be used for sediment control because it could pose an entrapment hazard to California tiger salamanders and other wildlife.

In response to comment L1-4, the following revisions have been made to Mitigation Measure 3.3-4a, to reflect the commenter's recommendations that preconstruction surveys be conducted for Swainson's hawks in accordance with Swainson's Hawk Technical Advisory Committee guidance. New text is indicated by underlining. The Draft EIR is revised as follows:

Mitigation Measure 3.3-4a: Avoid and minimize impacts on nesting raptors. SMUD will implement the following measures to avoid and minimize impacts on nesting raptors:

- If construction activities are scheduled to occur during the breeding season (February 1–August 31), SMUD will conduct preconstruction surveys in all potential suitable raptor nesting habitat within 0.25 mile of proposed construction areas, including trees, shrubs, grasslands, and wetland vegetation. A qualified wildlife biologist shall determine the timing of preconstruction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 30 days before construction. The 30-day survey period allows flexibility in order for surveys to be conducted when the likelihood of nest detection is maximized (e.g., during courtship, nest building, or when feeding young).
- SMUD will conduct nesting surveys for Swainson's hawks in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) guidance published in

2000 (Recommended Timing and Methodology for Swainsons' Hawk Nesting Surveys in California's Central Valley). These methods will require surveys to start early in the nesting season (late March to early April). Surveys will be conducted within a minimum 0.25-mile radius of the project area or a larger area if necessary to identify potentially active nests potentially affected by project construction. As required by the TAC guidance, surveys will be conducted for at least two survey periods in the nesting season, immediately before the start of project construction activities. The qualified biologist conducting the surveys will have a minimum of 2 years of experience in implementing the TAC survey methodology.

- SMUD will maintain no-disturbance buffers around active raptor nests during the breeding season, or until it is determined the young have fledged. The no-disturbance zone shall include a 500-foot buffer around all raptor nests (including owls) and a 0.25-mile buffer for any active Swainson's hawk nests.
 - No-disturbance buffer sizes for non-special-status species raptors may be increased or decreased by a qualified biologist based on the sensitivity of the species of raptor, or based on site conditions that affect disturbance, such as the type of work, vegetation structure or density, and the line of sight between construction work and the nest to nesting raptors.
 - No-disturbance buffer sizes for special-status raptor species may be increased or decreased by the qualified biologist in consultation with USFWS and CDFW as appropriate.
 - Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (e.g., county roads, highways, farm roads).
 - If no nests are observed during the preconstruction survey but nesting occurs after the start of construction, it will be assumed that the individuals are acclimated to the level of ongoing disturbance.
 - ▲ SMUD will clearly identify the locations of no-disturbance buffers (e.g., 250 feet, 500 feet, or 0.25 mile) on maps that will be made available to construction crews.
 - ▲ Before and during construction, a qualified biologist shall identify all active nest setback areas on construction drawings, and if appropriate, shall flag or fence the setback areas.
 - ▲ If construction is scheduled to occur during the non-nesting season, then no nesting bird surveys are required before construction activity begins, except provisions for surveys for burrowing owls outside the nesting season (September 1–January 31), as specified below in Mitigation Measure 3.3-4b.

In response to comment L1-4, the following revisions have been made to Mitigation Measure 3.3-5, to reflect the commenter's suggestions for additional text to clarify the requirements for the proposed Swainson's hawks foraging habitat mitigation lands.

Mitigation Measure 3.3-5: Acquire off-site mitigation to replace lost raptor foraging habitat.

SMUD will implement the following compensatory mitigation to offset net impacts on foraging habitat for breeding Swainson's hawks and other raptor species. Based on Swainson's hawk nest locations documented in recent years, no permanent project impacts on foraging habitat will occur within 1 mile of an active Swainson's hawk. Depending on whether the 150m WTG option or the 136m WTG option is selected, 25.38 acres or 30.49 acres of suitable Swainson's hawk foraging habitat will be required to mitigate this loss.

SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands as follows:

- Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree (either 25.38 acres or 30.49 acres, depending on the WTG option selected) will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). This ratio is consistent with recommendations in DFG 1994: "Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of habitat mitigation land for each acre of urban development authorized [0.75:1 ratio]." All mitigation lands protected under this requirement shall be protected in perpetuity in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk. The easement will be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity, to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Sections 65965–65968 of the Government Code, as amended. As the State's trustee for fish and wildlife resources, CDFW is to be named as a third-party beneficiary under the conservation easement. SMUD will consult with CDFW in determining the suitability of the proposed mitigation lands to offset impacts of the project on Swainson's hawk foraging habitat.
- Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.

In response to comment L1-5, the following revision has been made to Mitigation Measure 3.3-4b to require consultation with CDFW to determine if passive relocation would be appropriate to avoid impacts on wintering or nesting burrowing owls, and to require mitigation at a 3:1 ratio to offset habitat loss.

Mitigation Measure 3.3-4b: Avoid and minimize impacts on burrowing owls.

To avoid and minimize impacts on burrowing owls, SMUD will implement the following guidelines adapted from the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012):

- SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 500 feet of proposed construction. The take avoidance surveys, consisting of up to four visits, shall be initiated within 30 days of and completed at least 14 days before construction is initiated at a given location. In areas with burrows or refuge that could potentially support burrowing owls, a clearance visit shall be conducted within 24 hours of construction, including when construction work is reinitiated after a lapse of two or more weeks.
- SMUD will avoid disturbing active western burrowing owl nests and occupied nesting burrows.
 - In accordance with standard CDFW mitigation guidelines, SMUD and its construction contractor will avoid disturbance at occupied burrows in accordance with the following seasonal distance buffers for low, medium, and high levels of disturbance (CDFG 2012):
 - April 1 – August 15: 200 m (low), 500 m (medium), and 500 m (high)
 - August 16 – October 15: 200 m (low), 200 m (medium), and 500 m (high)
 - October 16 – March 31: 50 m (low), 100 m (medium), and 500 m (high)
 - These distances may be increased or decreased if, as determined by a qualified biologist, a different distance is required to ensure construction activities will not adversely affect occupied burrows or disrupt breeding behavior.
- If a qualified biologist, in consultation with CDFW, determines that construction could adversely affect occupied burrows during the September 1–January 31 nonbreeding season, ~~the qualified biologist SMUD shall~~ SMUD shall consult with CDFW to determine if implement passive relocation using one-way doors, in accordance with guidelines prepared by the California Burrowing Owl Consortium (CDFG 2012), should be implemented, and if off-site compensatory mitigation is required to offset habitat loss. Compensatory mitigation for loss of burrowing owl habitat would require protection of suitable mitigation lands in perpetuity at a minimum 3:1 mitigation ratio, and through coordination with CDFW.

In response to comment L1-7, the following revision has been made to Mitigation Measure 3.3-9b, to clarify that post-construction monitoring would not consist of a

single survey at all turbines, but rather would require monthly surveys at all turbines for 1 year.

Mitigation Measure 3.3-9b: Conduct bird and bat mortality monitoring. To assess operational impacts on birds and bats and inform potential adaptive management and mitigation approaches, SMUD will conduct 1 year of postconstruction mortality monitoring in the project area, as follows:

- Qualified biologists shall monitor bird and bat mortality annually throughout the project area in accordance with the requirements set forth below, which incorporate guidelines described in SMUD's Solano BBCS (SMUD 2013), SMUD's Final Eagle Conservation Plan (SMUD 2014), and the California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and DFG 2007). The monitoring shall be conducted so that sufficient information is available to allow evaluation of WTG design characteristics and location effects that contribute to mortality, including information about the species, number, location, and distance of dead birds relative to WTG locations; availability of raptor prey species; and cause of bird and bat mortalities.
- Monitoring will be conducted monthly for 1 year at all turbines in the Solano 4 Wind Project area after the first delivery of power., and will include but not be limited to the following methods unless otherwise determined appropriate by SMUD:
 - The standard search radius will be 100 meters to account for terrain and WTG height.
 - A sufficient number of "road and pad" searches will be conducted to 150 meters to determine the proportion of carcasses falling outside of the standard (100-meter) search radius.
 - Searcher efficiency trials will be conducted for four seasons and will be sufficient to analyze differences in carcass size (small/medium/large) and vegetative cover.
 - Data will be analyzed using procedures described by the California Energy Commission and CDFW (CEC and CDFG 2007), or newer approaches (e.g., General Estimator [Dalthorp et al. 2018], the Evidence of Absence model [Dalthorp et al. 2017]). The data analysis will address adjusted fatality rates annually, seasonally, and by species. An annual report will be prepared each year and a final report will be prepared after the 1-year monitoring period.
 - If a carcass with a band is found in the project area, SMUD will promptly report the banding information to USFWS's Bird Banding Laboratory. SMUD will ~~coordinate~~ consult with the laboratory to include any information provided by USFWS that is pertinent to avian mortality at the project site, if any, in the annual monitoring reports.

- After postconstruction monitoring data have been obtained, SMUD will review the data. In consultation with USFWS and CDFW, SMUD will determine which specific WTGs, if any, generate disproportionately high levels of avian mortalities (based on evidence of statistically significant higher levels of mortality relative to other WTGs), and whether adaptive management measures are needed to reduce or avoid mortalities at those specific WTGs.
- If unauthorized take of a federally listed or state-listed endangered or threatened avian or bat species occurs during project operation, SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery, and will submit written documentation of the take to the appropriate agency within 2 calendar days. The documentation will describe the date, time, location, species, and if possible, cause of unauthorized take. Although not expected to occur, SMUD will implement any actions required or recommended by measures to avoid, minimize, or compensate for possible take in consultation with the USFWS and/or CDFW, including obtaining an Incidental Take Permit as appropriate as a result of the unauthorized take. Also see Mitigation Measure 3.3-9g Implement Adaptive Management.

SMUD will design and conduct postconstruction mortality monitoring in a way that ensures at least a 50 percent chance of detecting mortality of large raptors (including golden eagle and Swainson's hawk) caused by a collision with a project WTG. Modeling tools such as the Evidence of Absence model (Dalthorp et al. 2017) can be used to design studies with such an objective in mind. This may require adjusting the radius of the search area around the WTGs, the proportion of WTGs searched, or other standard parameters set forth above.

After postconstruction monitoring activities, SMUD will conduct an annual "clean sweep" survey around all Solano 4 turbines each subsequent calendar year for the life of the project. In addition, SMUD will continue its current practice of incidental monitoring of the project area will continue through reporting of incidental fatalities or injured birds by on-site staff to the Avian Reporting System (see Mitigation Measure 3.3-9h, "Implement Adaptive Management to Address Disproportionate Mortality of Special-Status Birds or Bats," below). SMUD will also continue to report incidental fatalities or injured birds in compliance with its USFWS Special Purpose Utility Permit (Permit #MB98730A #MB189818-0). As required in Mitigation Measure 3.3-9b SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery any unauthorized take of a federally listed or state-listed endangered or threatened species.

The following mitigation measure numbers/letters have been corrected:

- **Mitigation Measure 3.3-9d~~c~~**: Implement a training program for construction and project personnel.
- **Mitigation Measure 3.3-9e~~d~~**: Provide funding for raptor recovery and rehabilitation.
- **Mitigation Measure 3.3-9f~~e~~**: Reduce vehicle collision risks to wildlife.

- **Mitigation Measure 3.3-9gf:** Secure an eagle incidental take permit for Solano 4 Wind from USFWS and implement permit conditions.
- **Mitigation Measure 3.3-9hg:** Implement adaptive management to address disproportionate mortality of special-status birds or bats.

3.4 Revisions to Cultural Resources

The following minor revision has been made to clarify Mitigation Measure 3.4-1a and avoid any ambiguity about how the mitigation would be implemented. The minor revision in no way changes the impact conclusions presented in the Draft EIR; therefore, recirculation of the EIR is not required.

Mitigation Measure 3.4-1a: Avoid or conduct subsurface testing and/or monitoring during construction in areas with high potential for the presence of buried archaeological sites.

The construction contractor shall avoid conducting ground-disturbing activities in the few locations within the direct APE that have high or the highest potential for buried archaeological sites. If these areas cannot be avoided and project-related ground disturbance in those areas would be sufficiently deep that they could encounter buried archaeological resources, then additional actions may be necessary to mitigate any impacts on as-yet unidentified buried resources. These minimization efforts could include conducting subsurface testing before project construction and/or monitoring during the construction period. In the event that a historic-period archaeological site (such as concentrated deposits of bottles or bricks with makers marks, amethyst glass, or other historic refuse) is uncovered during grading or other construction activities, all ground-disturbing activity within 100 feet of the discovery shall be halted until a qualified archaeologist can assess the significance of the find. SMUD will be notified of the potential find and a qualified archeologist shall be retained to investigate its significance. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either a historical resource or a unique archaeological resource), the archaeologist shall work with SMUD to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic-period archaeological resources, they shall be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries shall be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, analyzes and interprets the results.

3.5 Revisions to Transportation and Traffic

The following minor revision has been made to clarify Mitigation Measure 3.11-2 and avoid any ambiguity about whether the mitigation will be implemented. The minor revision in no way changes the impact conclusions presented in the Draft EIR; therefore, recirculation of the EIR is not required.

Mitigation Measure 3.11-2: Monitor the physical condition of roadway segments along primary access routes to the project site and restore the physical condition of affected roadways to the extent damaged by the project.

SMUD or its construction contractor will conduct a preconstruction survey and assessment of existing pavement conditions along SR 12 east, Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. If the preconstruction pavement conditions are deficient, the preconstruction pavement analysis shall establish the baseline for required improvements. If the preconstruction pavement conditions are acceptable, improvements shall be required only if the postconstruction pavement condition is deficient, and only to the extent that the project demonstrably contributed to such deficiencies. If deficient following construction, any segments of SR 12 east and Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road that are affected by the project shall be returned to preconstruction conditions after construction. Implementing this measure will ensure that construction activities will not worsen pavement conditions, relative to existing conditions.

Before construction, SMUD will ~~make a good-faith effort to~~ enter into mitigation agreements with Caltrans (for SR 12 east) and Solano County (for Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road) to verify the location, extent, timing, and fair-share cost to be paid by SMUD for any necessary pre- and postconstruction physical improvements. The fair-share amount will be either the cost to return the affected roadway segment to its preconstruction condition or a contribution to programmed planned improvements. Repairs may include overlays or other surface treatments.

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4 Mitigation Monitoring and Reporting Program

This mitigation monitoring and reporting program (MMRP) summarizes the mitigation measures, implementation schedule, and responsible parties for monitoring the mitigation measures required of the proposed Solano 4 Wind Project, as set forth in the EIR prepared for the project.

Section 21081.6 of the California Public Resources Code and Section 15091(d) and Section 15097 of the State CEQA Guidelines require public agencies “to adopt a reporting or monitoring program for changes to the project which it has adopted or made conditions of project approval to mitigate or avoid significant effects on the environment.” An MMRP is required for the project because the EIR for the project identified potentially significant adverse impacts related to construction and operation of the project, and mitigation measures have been identified to reduce most of those impacts to a less-than-significant-level.

This MMRP will be adopted by SMUD if it approves the project and will be kept on file at SMUD’s Customer Service Center at 6301 S Street, Sacramento, CA 95817; and at SMUD’s East Campus Operations Center at 4401 Bradshaw Road, Sacramento, CA 95827. SMUD will use this MMRP to ensure that identified mitigation measures, adopted as a condition of project approval, are implemented appropriately.

4.1 Mitigation Implementation and Monitoring

SMUD shall be responsible for monitoring the implementation of mitigation measures designed to minimize impacts associated with the project. Although SMUD shall have ultimate responsibility for ensuring implementation, others may be assigned the responsibility of actually implementing the mitigation. SMUD shall retain the primary responsibility for ensuring that the project meets the requirements of this MMRP and other permit conditions imposed by participating regulatory agencies.

SMUD shall designate specific personnel who will be responsible for monitoring implementation of the mitigation that will occur during project construction. The designated personnel will be responsible for submitting documentation and reports to SMUD on a schedule consistent with the mitigation measure and in a manner necessary for demonstrating compliance with mitigation requirements. SMUD shall ensure that the designated personnel have authority to require implementation of mitigation requirements and shall be capable of terminating project construction activities found to be inconsistent with mitigation objectives or project approval conditions.

SMUD and its appointed contractor also shall be responsible for ensuring that its construction personnel understand their responsibilities for adhering to the performance requirements of the mitigation plan and other contractual requirements related to the implementation of mitigation as part of project construction. In addition to the prescribed mitigation measures, Table 4-1 lists each identified environmental resource being affected (in the same order and using the same numbering system as in the EIR), the associated CEQA checklist question (used as the thresholds of significance in the EIR), the corresponding monitoring and reporting requirement, the party responsible for

ensuring implementation of the mitigation measure and monitoring effort, and the project component to which the mitigation measure applies.

If an issue addressed in the EIR does not result in mitigation, it is not included in the table.

4.2 Mitigation Enforcement

SMUD shall be responsible for enforcing mitigation measures. If alternative measures are identified that would be equally effective in mitigating the identified impacts, implementation of these alternative measures will not occur until agreed on by SMUD.

4.3 Reporting

SMUD shall, or may require the developer to, prepare a monitoring report on completion of the project describing the compliance of the activity with the required mitigation measures. Information regarding inspections and other requirements will be compiled and explained in the report. The report will be designed to simply and clearly identify whether mitigation measures have been adequately implemented. At a minimum, each report will identify the mitigation measures or conditions to be monitored for implementation, whether compliance with the mitigation measures or conditions has occurred, the procedures used to assess compliance, and whether further action is required. The report will be presented to SMUD's Board of Directors.

4.4 Mitigation Monitoring and Reporting Program Table

The categories identified in Table 4.1 are described below.

Issue Area – This column identifies which CEQA issue area the mitigation measure is attributed to in the EIR.

Impacts – This column provides the potential impacts summary.

Mitigation Measure – This column provides the verbatim text of the adopted mitigation measure.

Implementation Duration – This column identifies when the mitigation measure will be implemented (e.g., before construction, during construction, during operations-maintenance, during decommissioning).

Monitoring Duration – This column identifies the period within which monitoring will be conducted.

Responsibility – This column identifies the party(ies) responsible for implementation and/or enforcing compliance with the requirements of the mitigation measure.

Applicable Project Component – This column identifies with what component or under what conditions the mitigation measure will be implemented (e.g., all project components, during high wind conditions, construction within wetlands).

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Aesthetics	Impact 3.1-1: Project impacts on scenic vistas and potential for substantial degradation of existing visual character or quality of public views of the site and surroundings, including those within the viewshed of a state or locally designated scenic highway.	<p>Mitigation Measure 3.1-1a: Design the Project to Avoid Aesthetic Impacts.</p> <p>SMUD or its contractor shall consider topography when siting wind turbines and shall avoid major modifications to natural landforms or other characteristic parts of the landscape. The turbines shall be clustered or grouped to break up overly long lines of turbines. The turbines shall be similar in shape and size.</p> <p>Each WTG shall be painted a uniform white or light-grey color, “RAL 7035” or similar, per manufacturer’s requirements. To minimize the structures’ reflectivity, the paint used shall have a gloss level that does not exceed 30 percent, or 60–70 gloss units,¹ as calculated by the manufacturer. The surfaces of all other structures (e.g., meteorology towers) shall be given low-reflectivity finishes with neutral colors to minimize the contrast of the structures with their backdrops.</p> <p>Fewer, larger turbines shall be preferred over more, smaller turbines. Commercial messages and symbols shall be prohibited on wind turbines. Collection and home run lines shall be underground; no overhead collection of home run lines shall be used.</p> <p>To minimize ground disturbance, to the extent feasible, existing roadways shall be used to access turbine pads. All construction-related areas shall be kept clean and tidy, with construction materials and equipment stored in the construction staging and laydown areas and/or generally away from public view. SMUD or its contractor shall remove construction debris promptly at intervals of 2 weeks or less, at any one location.</p>	Before and during construction All construction debris shall be removed promptly at intervals of 2 weeks or less, at any one location.	During construction	SMUD and Contractor	SMUD	All project components
Aesthetics	Impact 3.1-1: Project impacts on scenic vistas and potential for substantial degradation of existing visual character or quality of public views of the site and surroundings, including those within the viewshed of a state or locally designated scenic highway.	<p>Mitigation Measure 3.1-1b: Implement Operational Measures to Reduce Aesthetic Impacts.</p> <p>Wind turbines shall be kept clean and in good repair. Nacelle covers and rotor nose cones shall always be maintained in place and undamaged. Inoperative turbines shall be repaired, replaced, or removed as quickly as feasible because a turbine that is broken or disabled will create a health and safety hazard and disrupt the visual experience of the casual observer. SMUD or its contractor shall remove derelict WTGs and derelict parts and pieces. Similarly, operations and maintenance areas shall be kept clean and tidy, with all equipment, parts, and supplies stored in areas that are screened from view and/or are generally not visible to the general public. Grading and landscape treatment around tower foundations shall match the conditions of surrounding landscape and habitat to recreate a pleasing visual environment.</p>	During construction, operation-maintenance, and maintenance	During construction, operation, and maintenance	SMUD and/or Contractor	SMUD	All project components
Aesthetics	Impact 3.1-2: Creation of new sources of substantial light or glare that would adversely affect day or nighttime views in the area.	<p>Mitigation Measure 3.1-2: Use Technology to Reduce Night Sky Impacts.</p> <p>To reduce the potential for visual impacts associated with lighting, lighting for the turbine doorways shall be limited to the illumination required for safety of personnel and security of project infrastructure. To minimize the effect of light pollution in the surrounding area, all lighting shall be motion-activated and downcast.</p> <p>To minimize night sky impacts from hazard navigation lighting associated with wind facilities, ADLS technology will be employed as described in the FAA Determination of No Hazard. ADLS is a radar-based obstacle avoidance system that activates obstruction lighting and audio signals only when an aircraft is close to an obstruction on which an ADLS unit is mounted, such as a wind turbine.</p>	During construction and operation-maintenance	During construction and operation	Contractor	SMUD	Turbines and associated facilities (i.e. meteorological towers).
Air Quality	Impact 3.2-1: Project construction activities would emit NO _x and PM ₁₀ at levels that could exceed YSAQMD and BAAQMD daily	<p>Mitigation Measure 3.2-1: Reduce construction-related exhaust and dust emissions.</p> <p>The construction contractor shall prepare a fugitive dust control plan for the project’s construction phases. Before the start of construction, the plan shall be submitted to YSAQMD and BAAQMD for review and approval. The fugitive dust control plan shall include but not be limited to the following measures for all construction phases to reduce fugitive dust emissions and emissions of PM and NO_x exhaust:</p>	Submit FDCP prior to start of construction to YSAQMD and BAAQMD for review and approval;	Before and during construction	Contractor	SMUD	All project components

¹ Gloss units is a measurement scale based on a highly polished reference black glass standard with a refractive index of 100 gloss units at the specified angle of measurement. A measurement of 70 gloss units represents a low-gloss condition.

Table 4-1 Summary of Impacts and Mitigation Measures							
CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
	emissions thresholds for these pollutants.	<p><u>Fugitive Dust Control Plan</u></p> <ul style="list-style-type: none">All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent (at least two times per day). Moisture content can be verified by lab samples or moisture probe.All haul trucks transporting soil, sand, or other loose material off-site shall be covered.All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.All roadways, driveways, and wind turbine generator foundations and work areas to be paved or graveled shall be completed as soon as possible. These areas shall be paved or graveled as soon as possible after grading unless seeding or soil binders are used. No recycled concrete will be utilized on the roadways.Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 2 minutes. Clear signage shall be provided for construction workers at all access points.All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition before operation.A publicly visible sign shall be posted identifying the name and telephone number of the person to contact at SMUD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air districts’ phone numbers shall also be visible to ensure compliance with applicable regulations.All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour.Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the surface area disturbed at any one time.All trucks and equipment, including their tires, shall be washed off before leaving the site.Site access areas shall be covered with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel to a distance of 100 feet from the paved road.Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.The project shall develop a plan demonstrating that off-road equipment exceeding 50 horsepower) to be used in the construction project (owned, leased, and subcontractor vehicles) would achieve project-wide, fleet-average emissions reductions of 20 percent for NOx and 45 percent for PM, compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as they become available.Low-VOC (i.e., ROG) coatings shall be used beyond local requirements (Regulation 8, Rule 3, “Architectural Coatings”).	implement the FDCP during construction.				

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> All construction equipment, diesel trucks, and generators shall be equipped with best available control technology for reduction of NO_x and PM emissions. All contractors shall use equipment that meets ARB's most recent certification standard for off-road heavy-duty diesel engines (BAAQMD 2017:Tables 8-2 and 8-3). 					
Biological Resources	Impact 3.3-1: Temporary and permanent construction impacts on special-status amphibians and reptiles.	<p>Mitigation Measure 3.3-1a: Avoid and minimize impacts on California tiger salamander.</p> <p>SMUD will implement the following measures to avoid and minimize potential construction impacts on California tiger salamander:</p> <ul style="list-style-type: none"> A qualified California tiger salamander biologist (defined as an individual with 3 years of experience conducting surveys for California tiger salamander and habitat in the project region) will be present on-site to conduct monitoring during project construction and decommissioning activities that disturb surface soils within 250 feet of drainages or any other aquatic features identified as suitable for California tiger salamander (AECOM 2018b). SMUD will confine all project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander (AECOM 2018b). To the extent it is not possible to limit such activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander, the qualified biologist will perform a preconstruction survey within 48 hours before constructing project-related parking, storage areas, laydown sites, and equipment storage sites to ensure California tiger salamander are not present. If a California tiger salamander is found within the project area, SMUD will implement any actions necessary to avoid take of California tiger salamander, including establishing appropriate buffer area and exclusion fencing in consultation with USFWS and/or CDFW. If after avoidance measure cannot avoid take, SMUD shall seek an Incidental Take Permit from USFWS and/or CDFW, as appropriate, and implement any measures specified therein to reduce chances of take and minimize and fully mitigate any incidental take (including the measures in this MM 3.3-1a). All steep-walled holes or trenches that are 1 foot deep or greater and located within 250 feet of aquatic habitat that is suitable for CTS will have at least one escape ramp constructed of earthen fill or wooden planks. All such holes or trenches will be completely covered before sunset of each workday using boards or metal plates that are placed flush to the ground, and will be inspected before the start of daily construction activities. To prevent inadvertent entrapment of California tiger salamanders during project construction, maintenance, and decommissioning, all construction pipes, culverts, conduits, and other similar structures stored on-site overnight will be inspected before the structure is buried. Plastic monofilament netting will not be used for sediment control because it could pose an entrapment hazard to California tiger salamanders and other wildlife. 	<p>Qualified biologist to monitor during construction and decommissioning activities that disturb surface soils within 250 ft of drainages or other aquatic features.</p> <p>Ramp trenches or holes before sunset each workday and inspect before start of daily construction.</p> <p>Inspect pipes, culverts, conduits, etc. stored overnight before buried.</p> <p>Avoidance and minimization measures to be implemented during construction, operation-maintenance, and decommissioning.</p>	During construction, operation, and decommissioning	Qualified Biologist and Contractor	SMUD	All project components near suitable habitat for CTS
Biological Resources	Impact 3.3-1: Temporary and permanent construction impacts on special-status amphibians and reptiles.	<p>Mitigation Measure 3.3-1b: Develop and implement a worker environmental awareness program.</p> <p>Before the start of any construction activity, SMUD will develop a worker environmental awareness program that will be provided to all personnel working on the project site during construction and operation. Training materials and briefings will include but not be limited to the following elements:</p> <ul style="list-style-type: none"> A discussion of applicable requirements established by the following laws and regulations, consequences of noncompliance, and the specific conditions of permits obtained for the project from regulatory agencies (USACE, the RWQCB, USFWS, and CDFW) under these laws and regulations: the federal ESA and CESA; the Bald and Golden Eagle Protection Act; the Migratory Bird Treaty Act; 	<p>SMUD to develop worker environmental awareness program (WEAP) before construction.</p> <p>Provide WEAP to all personnel working on project site during construction, operation-</p>	During construction, operation-maintenance, and decommissioning	Qualified Biologist and Contractor	SMUD	All project components

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none">the Clean Water Act;Sections 3503, 3503.5, 3511, 3513, 3800(a), 4150, 4700, 5050, 5515, and 1602 of the California Fish and Game Code;California Code of Regulations Title 14, Sections 30.10 and 251.1;the Porter-Cologne Water Quality Control Act;Sections 5004 and 7201 of the CDFA Code; andCalifornia Coastal Act.Information about workers’ responsibilities with regard to California tiger salamander, an overview of the species’ appearance and habitat, and a description of the measures being taken to reduce potential effects on the species during project construction.Identification and values of the special-status plant and wildlife species to be protected by the project; identification of important wildlife habitat and sensitive natural communities to be protected; and identification of special-status species, life history descriptions, habitat requirements during various life stages, and the species’ protected status.Fire protection measures, measures to avoid introduction and minimize the spread of invasive weeds during construction and operation; procedures for managing trash and food waste to prevent attracting corvids or nuisance wildlife to the site; and procedures for preventing and containing spills of hazardous substances. <p>SMUD will conduct the worker-training program for new employees coming on the project site before the start of any construction, maintenance, or decommissioning activity that would disturb surface soils. SMUD will ensure that all personnel working on-site receive the training, including construction contractors and personnel who will operate and maintain project facilities. The training program will be recorded and subsequently shown to any project personnel who are unable to attend the initial training program.</p> <p>If a California tiger salamander, alive or dead, is encountered (i.e., observed, killed, or otherwise taken) at any location on the project site during the project’s lifetime, SMUD will notify USFWS and CDFW on the same day as the detection. Project personnel will not move the salamander encountered unless instructed to do so by USFWS and CDFW.</p> <p>If instructed to move the California tiger salamander by USFWS, a USFWS-approved and permitted biologist will carefully relocate the salamander by hand to a suitable, nearby active burrow system (e.g., for Botta pocket gopher or California ground squirrel) outside the area where project activities could injure or kill the animal. (The USFWS-approved and permitted biologist will be an individual with a Section 10[a][1][A] handler’s permit for California tiger salamander.) The qualified biologist will monitor the rescued California tiger salamander until it enters the burrow.</p> <p>In addition to the measures described above, SMUD will implement the following measures, listed after Impact 3.3-13 below, to protect water quality and drainages during construction:</p> <ul style="list-style-type: none">Mitigation Measure 3.3-13a, “Avoid and Minimize Impacts on Wetlands and Other Waters of the United States”Mitigation Measure 3.3-13b, “Avoid and Minimize Potential Effects on Waters of the United States Associated with Installation of Access Road Culvert Crossings”Mitigation Measure 3.3-13c, “Comply with Section 1602 Streambed Alteration Agreement”Mitigation Measure 3.3-13d, “Avoid and Minimize Potential Effects on Waters of the United States from Horizontal Directional Drilling”	maintenance, and decommissioning. Ongoing WEAP training. SMUD will notify USFWS and CDFW (on the same day) if a CTS is detected (dead or alive) and follow agency directions.				

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Biological Resources	Impact 3.3-2: Construction impacts on nesting birds (nonraptors).	<p>Mitigation Measure 3.3-2: Avoid impacts on nesting birds.</p> <p>In addition to Mitigation Measure 3.3-1b, “Develop and Implement a Worker Environmental Awareness Program,” and measures for biological monitors, SMUD will implement the following measures to avoid directly or indirectly affecting nesting birds during project construction:</p> <ul style="list-style-type: none"> SMUD will conduct preconstruction nesting bird surveys to locate all active nests of special-status birds and birds protected under the MBTA and California Fish and Game Code Sections 3503 and 3503.5. No more than one week before any construction activities occur during the nesting season (February 1–August 31), including vegetation removal if necessary, a qualified biologist shall conduct nesting bird surveys to identify any nests within 100 feet of proposed work areas. The qualified biologist is defined as an individual knowledgeable about the distribution, habitat, life history, and identification of Northern California birds, and with 3 years of experience in nest searching for birds that may be present in the project area. If nests are detected during the preconstruction surveys, a 100-foot exclusion zone will be established around the nest in which no work will be allowed until the young have successfully fledged or nesting activity has ceased. The qualified biologist will make the determination of fledging or cessation of nesting. In consultation with a qualified avian biologist, USFWS, and CDFW, the size of the exclusion zone may be modified depending on the species and the type of construction activity and associated disturbance anticipated near the nest. 	Preconstruction surveys 1 week or less before construction during nesting season (Feb 1 – Aug 31). Establish 100-ft buffers around nests and monitor during construction. Buffers may be modified in consultation with avian biologist, USFWS, and CDFW.	Before and during construction	Qualified Biologist and Contractor	SMUD, CDFW and USFWS	All project components
Biological Resources	Impact 3.3-4: Construction impacts on raptor nesting activity.	<p>Mitigation Measure 3.3-4a: Avoid and minimize impacts on nesting raptors.</p> <p>SMUD will implement the following measures to avoid and minimize impacts on nesting raptors:</p> <ul style="list-style-type: none"> If construction activities are scheduled to occur during the breeding season (February 1–August 31), SMUD will conduct preconstruction surveys in all potential suitable raptor nesting habitat within 0.25 mile of proposed construction areas, including trees, shrubs, grasslands, and wetland vegetation. A qualified wildlife biologist shall determine the timing of preconstruction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 30 days before construction. The 30-day survey period allows flexibility in order for surveys to be conducted when the likelihood of nest detection is maximized (e.g., during courtship, nest building, or when feeding young). SMUD will conduct nesting surveys for Swainson’s hawks in accordance with the Swainson’s Hawk Technical Advisory Committee (TAC) guidance published in 2000 (Recommended Timing and Methodology for Swainsons’ Hawk Nesting Surveys in California’s Central Valley). These methods will require surveys to start early in the nesting season (late March to early April). Surveys will be conducted within a minimum 0.25-mile radius of the project area or a larger area if necessary to identify potentially active nests potentially affected by project construction. As required by the TAC guidance, surveys will be conducted for at least two survey periods in the nesting season, immediately before the start of project construction activities. The qualified biologist conducting the surveys will have a minimum of 2 years of experience in implementing the TAC survey methodology. SMUD will maintain no-disturbance buffers around active raptor nests during the breeding season, or until it is determined the young have fledged. The no-disturbance zone shall include a 500-foot buffer around all raptor nests (including owls) and a 0.25-mile buffer for any active Swainson’s hawk nests. <ul style="list-style-type: none"> No-disturbance buffer sizes for non-special-status species raptors may be increased or decreased by a qualified biologist based on the sensitivity of the species of raptor, or based on site conditions that affect disturbance, such as the type of work, vegetation structure or density, and the line of sight between construction work and the nest to nesting raptors. No-disturbance buffer sizes for special-status raptor species may be increased or decreased by the qualified biologist in consultation with USFWS and CDFW as appropriate. 	Preconstruction surveys in all potential suitable raptor nesting habitat within 0.25 mile of proposed construction areas, including trees, shrubs, grasslands, and wetland vegetation, if construction occurs Feb 1 – Aug 31. No-disturbance zone of 500-foot buffer around all raptor nests (including owls) and a 0.25-mile buffer for any active Swainson’s hawk nests.	Before and during construction	Qualified Biologist and Contractor	SMUD and CDFW	All project components within suitable habitat for nesting raptors

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> ○ Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (e.g., county roads, highways, farm roads). ○ If no nests are observed during the preconstruction survey but nesting occurs after the start of construction, it will be assumed that the individuals are acclimated to the level of ongoing disturbance. ● SMUD will clearly identify the locations of no-disturbance buffers (e.g., 250 feet, 500 feet, or 0.25 mile) on maps that will be made available to construction crews. ● Before and during construction, a qualified biologist shall identify all active nest setback areas on construction drawings, and if appropriate, shall flag or fence the setback areas. ● If construction is scheduled to occur during the non-nesting season, then no nesting bird surveys are required before construction activity begins, except provisions for surveys for burrowing owls outside the nesting season (September 1–January 31), as specified below in Mitigation Measure 3.3-4b. 					
Biological Resources	Impact 3.3-4: Construction impacts on raptor nesting activity.	<p>Mitigation Measure 3.3-4b: Avoid and minimize impacts on burrowing owls.</p> <p>To avoid and minimize impacts on burrowing owls, SMUD will implement the following guidelines adapted from the CDFW <i>Staff Report on Burrowing Owl Mitigation</i> (CDFG 2012):</p> <ul style="list-style-type: none"> ● SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 500 feet of proposed construction. The take avoidance surveys, consisting of up to four visits, shall be initiated within 30 days of and completed at least 14 days before construction is initiated at a given location. In areas with burrows or refuge that could potentially support burrowing owls, a clearance visit shall be conducted within 24 hours of construction, including when construction work is reinitiated after a lapse of two or more weeks. ● SMUD will avoid disturbing active western burrowing owl nests and occupied nesting burrows. <ul style="list-style-type: none"> ○ In accordance with standard CDFW mitigation guidelines, SMUD and its construction contractor will avoid disturbance at occupied burrows in accordance with the following seasonal distance buffers for low, medium, and high levels of disturbance (CDFG 2012): <ul style="list-style-type: none"> ▪ April 1 – August 15: 200 m (low), 500 m (medium), and 500 m (high) ▪ August 16 – October 15: 200 m (low), 200 m (medium), and 500 m (high) ▪ October 16 – March 31: 50 m (low), 100 m (medium), and 500 m (high) ○ These distances may be increased or decreased if, as determined by a qualified biologist, a different distance is required to ensure construction activities will not adversely affect occupied burrows or disrupt breeding behavior. ● If a qualified biologist, in consultation with CDFW, determines that construction could adversely affect occupied burrows during the September 1–January 31 nonbreeding season, SMUD shall consult with CDFW to determine if passive relocation using one-way doors, in accordance with guidelines prepared by the California Burrowing Owl Consortium (CDFG 2012), should be implemented, and if off-site compensatory mitigation is required to offset habitat loss. Compensatory mitigation for loss of burrowing owl habitat would require protection of suitable mitigation lands in perpetuity at a minimum 3:1 mitigation ratio. 	Preconstruction surveys in suitable habitat before construction (up to 4 visits, initiated within 30 days of and completed at least 14 days before construction begins in a given area). Clearance visit required 24 hours before construction in areas potentially supporting burrowing owls and when construction work is reinitiated after a lapse of 2 or more weeks. Implement applicable seasonal distance buffers for low, medium, or high levels of disturbance. Passive relocation if necessary, during Sept 1 – Jan 31 in consultation with CDFW.	Before and during construction	Qualified Biologist and Contractor	SMUD and CDFW	All project components within suitable habitat for burrowing owls
Biological Resources	Impact 3.3-5: Removal and modification of raptor nesting, foraging,	Mitigation Measure 3.3-5: Acquire off-site mitigation to replace lost raptor foraging habitat.	Before construction	N/A	SMUD	Mitigation Management Organization	Foraging habitat for Swainson's hawk

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
	and roosting habitat during construction.	<p>SMUD will implement the following compensatory mitigation to offset net impacts on foraging habitat for breeding Swainson's hawks and other raptor species. Based on Swainson's hawk nest locations documented in recent years, no permanent project impacts on foraging habitat will occur within 1 mile of an active Swainson's hawk. Depending on whether the 150m WTG option or the 136m WTG option is selected, 25.38 acres or 30.49 acres of suitable Swainson's hawk foraging habitat will be required to mitigate this loss.</p> <p>SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands as follows:</p> <ul style="list-style-type: none"> Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree (either 25.38 acres or 30.49 acres, depending on the WTG option selected) will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). This ratio is consistent with recommendations in DFG 1994: "Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of habitat mitigation land for each acre of urban development authorized [0.75:1]." All mitigation lands protected under this requirement shall be protected in perpetuity in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk. The easement will be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity, to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Sections 65965–65968 of the Government Code, as amended. As the State's trustee for fish and wildlife resources, CDFW is to be named as a third-party beneficiary under the conservation easement. SMUD will consult with CDFW in determining the suitability of the proposed mitigation lands to offset impacts of the project on Swainson's hawk foraging habitat. Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment. 		Management of the mitigation lands will be monitored in perpetuity by funding a management endowment			
Biological Resources	Impact 3.3-6: Construction impacts on bald and golden eagle nesting activity.	<p>Mitigation Measure 3.3-6: Avoid and minimize impacts on nesting eagles.</p> <p>SMUD will implement the following measures to avoid and minimize impacts on nesting eagles:</p> <ul style="list-style-type: none"> Ground-based surveys will be conducted to assess the status of all previously documented eagle nest locations (CNDDDB or other reliable sources) within the 2-mile buffer of the project area, and will follow guidance set forth in USFWS (2013) for ground-based surveys to determine occupancy, including the following site-specific recommendations: <ul style="list-style-type: none"> Two 4-hour observations shall be conducted at each nest (multiple nests may be observed simultaneously), one in late January and the other in late February, to determine whether territories are occupied by adult eagles and identify nesting activity where possible. If an active nest is located, no further ground monitoring is required. However, if nesting behavior is observed within 2 miles of the project buffer and a nest site is not located, an aerial inspection of the area shall be conducted. The results of the surveys shall be documented in a report and submitted to USFWS and CDFW no later than August of the breeding season in which the survey was conducted (e.g., August 2020 for winter/spring 2020 surveys). <p>SMUD will implement the following avoidance buffer distances for bald eagle and golden eagle (respectively) for the indicated construction activity, assuming a direct line of sight between the construction activity and the active nest:</p> <ul style="list-style-type: none"> Human foot traffic: 400 meters/800 meters Pass-through vehicular traffic: 200 meters/400 meters 	<p>Preconstruction surveys and research before construction.</p> <p>Nest surveys in Jan and Feb.</p> <p>Results of surveys to be submitted to USFWS and CDFW no later than Aug of the breeding season in which the survey was conducted (e.g., Aug 2020 for winter/spring 2020 surveys).</p> <p>SMUD to implement avoidance buffer distances for bald eagle and golden eagle nests.</p>	Before and during construction.	Qualified Biologist and Contractor	SMUD, USFWS, CDFW	All project components within nest buffers

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> Any other construction work except the types described below: 800 meters/1,600 meters Blasting: 1,600 meters for both species Helicopter flight: 1,600 meters (horizontal and vertical) for both species <p>Active eagle nests and associated buffers will be indicated in construction drawings for the project and will be discussed in the worker environmental awareness program training for construction workers (Mitigation Measure 3.3-1b).</p>	Ongoing WEAP training.				
Biological Resources	Impact 3.3-7: Removal and modification of golden eagle foraging habitat during construction.	Mitigation Measure 3.3-7: Implement Mitigation Measure 3.3-5. SMUD will implement Mitigation Measure 3.3-5, "Acquire Off-site Mitigation to Replace Disturbed Raptor Foraging Habitat," listed above.	See MM 3.3-5	See MM 3.3-5	See MM 3.3-5	See MM 3.3-5	See MM 3.3-5
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	Mitigation Measure 3.3-9a: Avoid and minimize operational impacts on birds and bats. SMUD will design and operate the project to minimize potential operational impacts on birds and bats by adhering to impact avoidance and minimization measures, including those described the <i>SMUD Solano Wind Bird and Bat Conservation Strategies</i> (SMUD 2013), and SMUD's Eagle Conservation Plan (SMUD 2014). These measures include the following: <ul style="list-style-type: none"> Maintain a landscape that does not encourage bird or bat occurrence by conducting regular rotational agricultural activities to keep rodent prey populations to relatively low levels. In addition, implement a prey management program to reduce the availability of rabbits, ground squirrels, and other prey that could attract eagles and other raptors. Adhere to the general guidelines for turbine and WTG tower design and operation to minimize bird and bat mortality: <ul style="list-style-type: none"> Use turbines and WTG tower designs lacking potential raptor perches that may encourage bird activity near the moving rotors. Use turbines with rotor tips at least 25 meters, preferably 30 meters, above the ground. Avoid guy wires on meteorological towers. Select WTG sites using the following guidelines designed to minimize the extent of potential avian and bat mortality: <ul style="list-style-type: none"> Minimize the density of WTGs on the landscape and avoid placing WTGs close together in long strings, which creates barriers to movement by restricting the available space for birds and bats to negotiate through a WTG field. Establish setbacks from roads, residences, and wetlands and other unique habitats where birds and bats are more likely to congregate. Where possible, avoid steep slopes, canyons, saddles, and other high-risk topographic features. 	Before and during construction-maintenance, and decommissioning	Before and during construction-maintenance, and decommissioning	SMUD and Contractor	SMUD	All project components
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	Mitigation Measure 3.3-9b: Conduct bird and bat mortality monitoring. To assess operational impacts on birds and bats and inform potential adaptive management and mitigation approaches, SMUD will conduct 1 year of postconstruction mortality monitoring in the project area, as follows: <ul style="list-style-type: none"> Qualified biologists shall monitor bird and bat mortality annually throughout the project area in accordance with the requirements set forth below, which incorporate guidelines described in SMUD's Solano BBS (SMUD 2013), SMUD's <i>Final Eagle Conservation Plan</i> (SMUD 2014), and the <i>California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development</i> (CEC and DFG 2007). The monitoring shall be conducted so that sufficient information is available to allow evaluation of WTG design characteristics and location effects that contribute to mortality, including information about 	For 1 year during operation. An annual report will be prepared each year and a final report will be prepared after the 1-year monitoring period.	Each month for 1 year; thereafter an annual "clean sweep" around all Solano 4 turbines will be conducted each subsequent calendar year for the life of the project	Qualified biologists and SMUD	SMUD	All project turbines and roads

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<p>the species, number, location, and distance of dead birds relative to WTG locations; availability of raptor prey species; and cause of bird and bat mortalities.</p> <ul style="list-style-type: none">Monitoring will be conducted monthly for 1 year at all turbines in the Solano 4 Wind Project area after the first delivery of power, and will include but not be limited to the following methods unless otherwise determined appropriate by SMUD:<ul style="list-style-type: none">The standard search radius will be 100 meters to account for terrain and WTG height.A sufficient number of “road and pad” searches will be conducted to 150 meters to determine the proportion of carcasses falling outside of the standard (100-meter) search radius.Searcher efficiency trials will be conducted for four seasons and will be sufficient to analyze differences in carcass size (small/medium/large) and vegetative cover.Data will be analyzed using procedures described by the California Energy Commission and CDFW (CEC and CDFG 2007), or newer approaches (e.g., General Estimator [Dalthorp et al. 2018], the Evidence of Absence model [Dalthorp et al. 2017]). The data analysis will address adjusted fatality rates annually, seasonally, and by species. An annual report will be prepared each year and a final report will be prepared after the 1-year monitoring period.If a carcass with a band is found in the project area, SMUD will promptly report the banding information to USFWS’s Bird Banding Laboratory. SMUD will consult with the laboratory to include any information provided by USFWS that is pertinent to avian mortality at the project site, if any, in the annual monitoring reports.After postconstruction monitoring data have been obtained, SMUD will review the data. In consultation with USFWS and CDFW, SMUD will determine which specific WTGs, if any, generate disproportionately high levels of avian mortalities (based on evidence of statistically significant higher levels of mortality relative to other WTGs), and whether adaptive management measures are needed to reduce or avoid mortalities at those specific WTGs.If unauthorized take of a federally listed or state-listed endangered or threatened avian or bat species occurs during project operation, SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery, and will submit written documentation of the take to the appropriate agency within 2 calendar days. The documentation will describe the date, time, location, species, and if possible, cause of unauthorized take. Although not expected to occur, SMUD will implement any measures to avoid, minimize, or compensate for possible take in consultation with the USFWS and/or CDFW, including obtaining an Incidental Take Permit, as appropriate. Also, see Mitigation Measure 3.3-9g <i>Implement Adaptive Management</i>. <p>SMUD will design and conduct postconstruction mortality monitoring in a way that ensures at least a 50 percent chance of detecting mortality of large raptors (including golden eagle and Swainson’s hawk) caused by a collision with a project WTG. Modeling tools such as the Evidence of Absence model (Dalthorp et al. 2017) can be used to design studies with such an objective in mind. This may require adjusting the radius of the search area around the WTGs, the proportion of WTGs searched, or other standard parameters set forth above.</p> <p>After postconstruction monitoring activities, SMUD will conduct an annual “clean sweep” survey around all Solano 4 turbines each subsequent calendar year for the life of the project. In addition, SMUD will continue its current practice of incidental monitoring of the project area through reporting of incidental fatalities or injured birds by on-site staff to the Avian Reporting System (see Mitigation Measure 3.3-9h, “Implement Adaptive Management to Address Disproportionate Mortality of Special-Status Birds or Bats,” below). SMUD will also continue to report incidental fatalities or injured birds in compliance with its USFWS Special Purpose Utility Permit (Permit #MB189818-0). As required in Mitigation Measure 3.3-9b SMUD will notify</p>	<p>SMUD to promptly report any banded carcasses to USFWS’s lab.</p> <p>After 1 year data collection, SMUD to consult with USFWS and CDFW.</p> <p>Notify USFWS and/or CDFW within 48 hours of discovery of unauthorized take of a listed species.</p> <p>After postconstruction monitoring activities, incidental monitoring of the project area will continue through reporting of incidental fatalities or injured birds</p>				

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery any unauthorized take of a federally listed or state-listed endangered or threatened species.					
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	<p>Mitigation Measure 3.3-9c: Implement a training program for construction and project personnel.</p> <p>SMUD will implement a training program so that on-site staff will have a thorough understanding of eagle mortality issues and corresponding protocols. The training program focuses on staff members with direct and indirect implementation responsibilities, including managers, supervisors, engineers, and on-site field crews. The training program will include the following elements:</p> <ul style="list-style-type: none"> • introduction and description of eagle mortality issues; • description of SMUD's environmental stewardship policy (SMUD Board Policy SD-7); • description of avian resources in the project area and the species most susceptible to collision mortality or injury; • discussion of federal and state regulations that protect birds, legal implications, and the need for compliance; • protocols for recording/reporting avian incident data and procedures for carcass collection and injured wildlife; and • responsibilities of staff members to implement the BBCS. 	Before and during construction, operation-maintenance, and decommissioning	Before and during construction, operation-maintenance, and decommissioning	Qualified Biologists and SMUD	SMUD	All project components
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	<p>Mitigation Measure 3.3-9d: Provide funding for raptor recovery and rehabilitation.</p> <p>SMUD will contribute \$5,000 each year for the duration of project operation to the University of California, Davis, California Raptor Center (UC Davis Raptor Center) or its successors for rehabilitation of injured avian species, including eagles and other raptors. The UC Davis Raptor Center is authorized by USFWS and CDFW to rehabilitate injured and orphaned raptors. The UC Davis Raptor Center successfully returns approximately 60 percent of the sick, injured, and orphaned birds it receives to the wild each year (UC Davis California Raptor Center 2019).</p>	Annually for duration of project operation	N/A	SMUD	SMUD	Project operations
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	<p>Mitigation Measure 3.3-9e: Reduce vehicle collision risks to wildlife.</p> <p>SMUD's operators will enforce a speed limit of 15 miles per hour on all roads on the project site to minimize the risk of collisions with small mammals and other wildlife, thereby reducing the number of roadkills, a potential food source that could attract eagles and increase their risk of vehicle collisions.</p>	During construction and operation-maintenance, and decommissioning	During construction and operation-maintenance, and decommissioning	SMUD and Contractor	SMUD	All project component roads
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	<p>Mitigation Measure 3.3-9f: Secure an eagle incidental take permit for Solano 4 Wind from USFWS and implement permit conditions.</p> <p>SMUD will compensate for the loss of any golden or bald eagles injured or killed as a result of project operation by complying with the conditions described in SMUD's Eagle Take Permit. Compensatory mitigation for eagle fatalities may include paying for the retrofitting of electrical utility poles that present a high risk of electrocution to eagles, as prescribed in the <i>Eagle Conservation Plan Guidance</i>, Appendix G (USFWS 2013). The performance standard for this compensatory mitigation would be to implement sufficient measures (e.g., electric utility retrofits) to offset all eagle fatalities directly attributable to project operation and resulting in permanent removal of an eagle from the wild, whether detected during structured postconstruction mortality monitoring surveys or detected incidentally. For each instance of project-related injury or mortality that removes a bird from the population, 32 utility poles shall be retrofitted. This is based on a resource equivalency analysis performed in accordance with USFWS guidelines (USFWS 2013:Appendix G) and assumes that each retrofitted pole would result in 10 years of avoided loss because of electrocution. The resource equivalency analysis also assumes that the take of one eagle and the associated compensatory mitigation will occur during the same year. Certain utility poles may be eligible for "reframing" (as opposed to retrofitting) to avoid electrocution, which USFWS assumes will result in 30 years of avoided loss rather</p>	Before and during construction, operation-maintenance, and decommissioning. Compensatory mitigation for the loss of each eagle shall be completed within 1 year of each instance of documented take. Comply with the federal ITP permit for the life of the project.	During construction, operation-maintenance, and decommissioning.	SMUD and Contractor	SMUD, USFWS	All project components.

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<p>than 10 years. The reframing of 14 eligible utility poles is sufficient to offset take of a single eagle, according to the resource equivalency analysis.</p> <p>Compensatory mitigation for the loss of each eagle shall be completed within 1 year of each instance of documented take. Retrofitted poles must be considered “high-risk” for electrocution (per USFWS 2013:Appendix G). For instances of bald eagle take, retrofitted poles must be located in areas where both species occur and within the Pacific Flyway north of 40 degrees North latitude. For instances of golden eagle take, retrofitted poles must be located within the Pacific Flyway. These areas represent the USFWS-designated “Eagle Management Units” at the project site for bald eagles and golden eagles, respectively (USFWS 2016).</p> <p>SMUD will comply with the federal eagle incidental take permit that will be secured for the project. Any mitigation completed toward fulfillment of the eagle take permit requirements will be counted toward the mitigation requirements described above. If mitigation requirements specified in the USFWS eagle take permit differ from those described above, the USFWS permit requirements shall prevail.</p>					
Biological Resources	Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation.	<p>Mitigation Measure 3.3-9g: Implement adaptive management to address disproportionate mortality of special-status birds or bats.</p> <p>SMUD will implement adaptive management strategies if postconstruction mortality monitoring studies determine that project operation is resulting in disproportionate mortality of one or more avian or bat species. The goal of the adaptive management strategies is to avoid a local population of avian or bat species dropping below self-sustaining levels. In accordance with the Solano BBSC (SMUD 2014), a determination to implement adaptive management based on “disproportionate mortality” will consider the factors listed below.</p> <ul style="list-style-type: none"> • Number of annual fatalities per turbine • Disproportionate representation of a particular species • Comparison to other wind energy facilities <p>As part of the annual survey and monitoring program described in Mitigation Measure 3.3-3b above, SMUD will analyze information related to these factors. Through this process of data collection, analysis, and consideration of these factors, disproportionate mortality at individual WTGs will be analyzed.</p> <p>A project-related fatality of one or more federal- or California-listed species or one or more California Fully Protected Species would trigger consultation with USFWS and/or CDFW, and implementation of the adaptive management and compensatory mitigation measures described below. If avian or bat mortality resulting from operation of the Solano 4 Wind Project exceeds the maximum estimated fatality rates described in Tables 3.3-11 and 3.3-12 for special-status birds or bats as well as common species, SMUD will develop and implement a comprehensive set of biologically based, reasonable, and feasible management and/or mitigation measures for responding to the fatality threshold exceedance, along with a timeline for implementation. SMUD will consult the USFWS and CDFW in development of the adaptive management and compensatory mitigation strategies for special-status birds and bats. Potential adaptive management actions to be considered include but are not limited to the following:</p> <ul style="list-style-type: none"> • <i>Implement avian or bat detection/deterrent systems.</i> This involves testing and implementing systems that detect birds and bats and taking actions designed to reduce the probability of a collision (e.g., informed WTG curtailment, utter deterrents designed to warn or frighten birds and bats from operating WTGs), including: <ul style="list-style-type: none"> ○ DT Bird/DT Bat Systems ○ IdentiFlight Eagle Detection System 	<p>After postconstruction mortality monitoring studies; during operations of project.</p> <p>SMUD will consult the USFWS and CDFW in development of the adaptive management and compensatory mitigation strategies for special-status birds and bats if necessary.</p> <p>Implement adaptive management actions if necessary.</p>	During construction-maintenance.	SMUD	SMUD	All project components

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> • <i>Implement passive avian or bat deterrents.</i> This involves testing and implementing deterrents designed to warn or frighten birds and bats from operating WTGs, including: <ul style="list-style-type: none"> ○ improved blade marking (compatible with Solano County visual guidelines) such as variations in paint color and color patterns; ○ blade designs that produce bird warning “whistles” (without upsetting blade integrity or exceeding ambient noise limits); and ○ ultrasonic devices that infuse the blade-swept area with high-frequency sounds that alert or frighten bats. • <i>Reduce on-site hazards.</i> Additional techniques for reducing on-site hazards, including possible operational adjustments, should be discussed if mortality rates substantially exceed study estimates. This could include making adjustments to cut-in speed or changes during migratory periods, if such actions are demonstrated to be effective as avoidance and minimization techniques. • <i>Reduce off-site hazards.</i> This can include installing safety features, such as anti-perching devices on poles or anti-electrocution retrofits and diverters on power lines, outside the project area (with concurrence from landowners and Pacific Gas and Electric Company or their successors) to discourage bird use. This should take advantage of Avian Power Line Interaction Committee guidelines and use hazard reduction techniques identified in SMUD’s avian protection plan. • <i>Implement operational minimization protocols (curtailment) during high-risk periods for bats.</i> High-risk periods include nighttime when wind speeds are low, spring and autumn migration periods, and certain weather conditions such as before and after storms (Arnett et al. 2011), Standard curtailment protocols can reduce bat fatalities by up to 93 percent, and feathering turbine blades can reduce bat fatalities by an average of 35 percent. Refined curtailment approaches such as the predictive algorithm-based curtailment approach developed by Korner-Nievergelt et al. (2013 in Sutter 2018) and Behr et al. (2017 in Sutter 2018), and activity-based curtailment strategies based on bat detection (Sutter 2018) have also been shown to substantially reduce bat mortality. • <i>Contribute to ongoing conservation efforts.</i> Examples include acquisition of additional conservation property (or easements) that provide habitat for species affected by project operations, and additional direct contributions to habitat restoration organizations or facilities such as the UC Davis Raptor Center 					
Biological Resources	Impact 3.3-12: Indirect impacts on riparian habitat.	<p>Mitigation Measure 3.3-12a: Avoid indirect impacts on riparian habitat.</p> <p>SMUD will avoid and minimize indirect impacts on riparian habitat by implementing the following mitigation measures:</p> <ul style="list-style-type: none"> • Mitigation Measure 3.5-1, “Prepare and Implement a SWPPP and Associated BMPs,” listed in Section 3.5, “Geology, Soils, Paleontological Resources, and Mineral Resources” • Mitigation Measure 3.7-1b, “Establish and Implement an Environmental Training Program,” listed in Section 3.7, “Hazards and Hazardous Materials” • Mitigation Measure 3.7-1c, “Prepare and Implement a Hazardous Substance Control and Emergency Response Plan,” listed in Section 3.7, “Hazards and Hazardous Materials” • Mitigation Measure 3.7-1d, “Prepare and Implement a Spill Prevention, Control, and Countermeasures Plan,” listed in Section 3.7, “Hazards and Hazardous Materials” <p>In addition, SMUD will implement the following measures:</p> <ul style="list-style-type: none"> • Before any construction activity, SMUD will assign a qualified biologist to identify the locations of riparian habitat and corresponding setbacks required by project permits, for avoidance. Identification of riparian habitat for avoidance will be in addition to and distinguished from any required construction boundary 	Before and during construction, operations-maintenance, and decommissioning.	Before and during construction, operations-maintenance, and decommissioning.	SMUD and Contractor	Qualified Biologists and SMUD	All project components with potential to affect riparian habitat

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		fencing or flagging. Setback requirements will be identified as appropriate (e.g., 100-foot setback) on project maps to comply with requirements specified in 404, 401, or 1602 permit conditions.					
Biological Resources	Impact 3.3-12: Indirect impacts on riparian habitat.	<p>Mitigation Measure 3.3-12b: Comply with Section 1600 streambed alteration agreement and CWA Sections 401 and 404 or the state’s Porter-Cologne Act.</p> <p>SMUD will obtain all necessary permits under Section 1602 of the California Fish and Game Code (Lake and Streambed Alteration Agreement) and Sections 401 and 404 of the CWA or the state’s Porter-Cologne Act and will implement all conditions and requirements of these state and federal permits obtained for the project.</p> <p>Mitigation Measure 3.3-12c: Develop a reclamation and revegetation plan.</p> <p>Before project construction, SMUD will develop and implement a reclamation and revegetation plan to restore sites disturbed by construction, and to reclaim abandoned access roads that will be restored to agricultural uses. The plan will describe reclamation and revegetation efforts to be conducted during project construction, both to stabilize the site and to return temporarily affected areas to pre-project conditions or restore abandoned roads to agricultural uses.</p> <p>The goals of the reclamation and restoration plan will be to:</p> <ul style="list-style-type: none"> • avoid the introduction and spread of invasive weeds, • develop vegetative cover in disturbed areas to prevent erosion, and • restore abandoned roads to agricultural uses (livestock grazing and dryland farming). <p>The reclamation and restoration plan will be consistent with the goals and objectives described in SMUD’s Land Management Plan for the Solano Wind Farm (Althouse and Meade 2018) or subsequent updates to that plan. The targets for percent vegetative cover and percent non-native species composition will be based on pre-project baseline surveys in areas that will be subject to disturbance. Monitoring to assess success (i.e., achieving the target pre-project vegetative cover and species composition) will occur for a period of 2 years. If the success criteria are not met at the end of 2 years, adaptive management measures for weed and erosion control, as described in SMUD’s Land Management Plan (Althouse and Meade 2018), will be implemented.</p> <p>The reclamation and revegetation plan will be developed and implemented to reclaim existing vegetation communities and agricultural land uses in the project area to the maximum extent feasible. Reclamation and revegetation of temporarily disturbed sites immediately after the completion of construction activities will help protect against indirect effects on riparian habitat by stabilizing soil and reducing the potential for invasion by nonnative invasive and noxious weeds.</p> <p>The plan will include, at a minimum, the following provisions:</p> <ul style="list-style-type: none"> • Reclamation of all areas disturbed by project construction, including temporary disturbance areas around construction sites, laydown/staging areas, temporary access roads, and the home run collection lines. Pest species listed by CDFA as List A or B, listed by the California Invasive Plant Council as Moderate or High, and/or targeted by the Solano Weed Management Area for eradication in Solano County shall not be used. A qualified biologist with demonstrated experience with the land cover types to be revegetated will have oversight for the selection of reclamation species. • Revegetation of areas of temporary disturbance as soon as construction is complete to reduce erosion and inhibit the establishment of invasive weeds. • A description of proven available revegetation techniques and procedures (such as hydroseeding, drill seeding, and broadcast seeding, adapted to local conditions) on all disturbed areas. • Salvage of topsoil in all areas subject to grading or excavation. Topsoil will be removed, stockpiled on-site, and returned to the original site (reclaimed) or used in habitat reclamation activities elsewhere on the site. 	<p>Before and during construction, and immediately after construction.</p> <p>Obtain necessary permits before construction.</p> <p>Before construction, SMUD will develop and implement a reclamation and revegetation plan.</p> <p>SMUD to implement reclamation and revegetation plan immediately after construction.</p>	<p>Before and during construction, and operation-maintenance.</p>	SMUD and Contractor	SMUD	All project components with potential to affect jurisdictional waters or features

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> Monitoring of revegetated and reclaimed habitat for a minimum of 2 years or until herbaceous cover meets or exceeds preproject conditions. Success criteria are defined as minimum thresholds for herbaceous vegetative cover, and maximum thresholds for noxious weeds, based on preproject (baseline) conditions for each habitat type to be revegetated (e.g., grazed annual grassland, farmland). Weed control measures, which may include cultural, mechanical, and/or chemical methods. Any application of herbicides shall be in compliance with all federal and state laws and regulations and implemented by a licensed qualified applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. In riparian areas and near streams and wetlands, only water-safe herbicides shall be used. Herbicides shall not be applied when wind velocities exceed 6 miles per hour. Adaptive management measures and a remedial planting plan. Remedial measures (e.g., additional planting, weeding, or erosion control) will be taken during the monitoring period if necessary to ensure success of the revegetation or reclamation effort. Maintenance, monitoring, and reporting procedures. <p>If the revegetation/reclamation fails to meet the established performance criteria for vegetative cover within the maintenance and monitoring period, monitoring of remedial planting shall extend beyond the initial period until the criteria are met, unless otherwise approved by the permitting agencies.</p> <p>If elements of the revegetated/reclaimed area(s) meet their success criteria before the end of 2 years of monitoring, they may be eliminated from future monitoring with approval from the permitting agencies.</p> <p>Mitigation Measure 3.3-12d: Conduct worker awareness training.</p> <p>SMUD will implement Mitigation Measure 3.3-1b, “Develop and Implement a Worker Environmental Awareness Program,” to include specific information regarding riparian habitat that occurs on the project site and that would be identified for avoidance. Training will be conducted before the start of construction. The training will include information about the locations and extent of riparian habitat, methods of resource avoidance, permit conditions, and possible fines for violating permit conditions and federal and/or state environmental laws. The training will also include guidance on methods to avoid the introduction and spread of invasive plant species.</p>					
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	<p>Mitigation Measure 3.3-13a: Avoid and minimize impacts on wetlands and other waters of the United States.</p> <p>SMUD will avoid and minimize impacts on wetlands and other waters of the United States by implementing the following mitigation measures:</p> <ul style="list-style-type: none"> Mitigation Measure 3.3-12c, “Develop a Reclamation and Revegetation Plan” Mitigation Measure 3.5-1a, “Prepare and Implement a SWPPP and Associated BMPs,” listed in Section 3.5, “Geology, Soils, Paleontological Resources, and Mineral Resources” Mitigation Measure 3.7-1b, “Establish and Implement an Environmental Training Program,” listed in Section 3.7, “Hazards and Hazardous Materials” Mitigation Measure 3.7-1c, “Prepare and Implement a Hazardous Substance Control and Emergency Response Plan,” listed in Section 3.7, “Hazards and Hazardous Materials” Mitigation Measure 3.7-1d, “Prepare and Implement a Spill Prevention, Control, and Countermeasures Plan,” listed in Section 3.7, “Hazards and Hazardous Materials” <p>SMUD will obtain and implement the terms of all necessary permits under Section 1602 of the California Fish and Game Code (Lake and Streambed Alteration Agreement) and CWA Sections 401 and 404, and will comply with the conditions and requirements of all other federal and state permits obtained for the project. In addition, SMUD will implement the following measures:</p>	<p>Before and during construction, and operations-maintenance, and decommissioning.</p> <p>SMUD will obtain all necessary permits before construction.</p> <p>SMUD will implement all permit conditions during construction and operations-maintenance, and decommissioning.</p> <p>Before the start of any construction activity, SMUD will assign a qualified</p>	<p>Before and during construction, and operations-maintenance, and decommissioning.</p>	SMUD, Qualified Biologists, and Contractor	SMUD	All project components with potential to affect wetlands or other waters of the US

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> SMUD will identify corresponding setback requirements as appropriate (e.g., 100-foot setback) on project maps to comply with setback requirements described in permit conditions. Any required setback will be shown on project construction drawings and plans (e.g., grading and improvement plans). Construction activities and project components will be located at least 100 feet from aquatic resources wherever feasible. Before the start of any construction activity, SMUD will assign a qualified biologist to identify the locations of wetlands and other waters and their corresponding setbacks (if applicable) as required by project permits, for avoidance. Identification of wetlands and other waters for avoidance will be in addition to and distinguished from any required construction boundary fencing or flagging. 	biologist to identify the locations of wetlands and other waters and their corresponding setbacks.				
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	<p>Mitigation Measure 3.3-13b: Avoid and minimize potential effects on waters of the United States from installation of access road culvert crossings.</p> <p>SMUD will comply with the following mitigation measures to minimize potential effects on waters of the United States caused by installation of culvert crossings to allow vehicular access across waters:</p> <ul style="list-style-type: none"> Before project construction, SMUD will design culvert crossings to maintain hydrological connectivity while allowing vehicular access across aquatic features. A hydrology study of the proposed culvert location(s) will be conducted to analyze existing drainage conditions and calculate appropriate culvert size(s). Before project construction, the contractor will obtain a grading permit from Solano County. During construction, the contractor will comply with all terms and conditions of the permit, including any supplemental conditions if applicable, and with the provisions of Chapter 31 of the Solano County Code, "Grading, Drainage, Land Leveling, and Erosion Control Ordinance." All grading work will be performed in accordance with good design and construction practice. SMUD will supply a bond if requested by Solano County. The contractor for culvert installation shall adhere to the following general design principles and standards, which shall serve as minimum guidelines for grading and erosion control work performed pursuant to the project's grading permit: <ul style="list-style-type: none"> All work shall be done in a manner that will minimize soil erosion. Existing natural vegetation shall be retained and preserved wherever possible and practical. Increased potential for erosion by removal of vegetation shall be limited by minimizing the area and time of vegetation removal to the extent practical. Exposure of barren soils shall be limited by completing work before the onset of the rainy season, to ensure that the soil is stabilized and vegetation is established in advance of the rainy season (October 15–April 15). Facilities shall be constructed to retain sediment produced on-site. Sediment basins, sediment traps, and similar required measures shall be installed before any clearing or grading activities, and shall be maintained throughout any such operations until removal is authorized. Seeding, mulching, and other suitable stabilization measures shall be used to protect exposed erodible areas in advance of the rainy season. Provisions shall be made to mitigate any increased runoff caused by altered soil conditions during and after construction. Neither cut nor fill slopes shall be steeper than two parts horizontal to one part vertical (2:1) unless a geological or engineering analysis indicates that steeper slopes are safe and appropriate erosion control measures are specified. 	<p>Before and during construction.</p> <p>Before construction, SMUD will design culvert crossings and the contractor will obtain a grading permit from Solano County.</p> <p>Contractor will comply with all terms of conditions of permit and mitigation noted here.</p>	Before and during construction.	SMUD, Qualified Biologist, Contractor	SMUD	All project components with potential to affect waters of the US.

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> ○ Cleared vegetation and excavated materials shall be disposed of in a manner that reduces the risk of erosion, and in conformance with the provisions of the approved grading permit. Topsoil shall be conserved for use in revegetation of disturbed areas whenever possible or practical. ○ Every effort shall be made to preserve existing channels and watercourses. No work shall be performed within a channel or watercourse unless no reasonable alternative is available. If such work is performed, it shall be limited to the minimum amount necessary. ○ All fill material shall not include organic, frozen, or other deleterious materials. No rock or similar irreducible material greater than 12 inches in any dimension shall be included in fills. ○ All fill supporting a structure shall be compacted to 90 percent of maximum density as determined by ASTM D 1557, modified proctor, in lifts not exceeding 12 inches in depth. 					
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	<p>Mitigation Measure 3.3-13c: Comply with Section 1602 streambed alteration agreement for construction activities in jurisdictional areas.</p> <p>Before construction, SMUD will submit a notification of streambed alteration to CDFW under Section 1602 of the Fish and Game Code. If CDFW concludes that the project will result in adverse impacts to fish and wildlife resources, it will provide a proposed Streambed Alteration Agreement, which must obtain reasonable conditions. SMUD will implement all reasonable permit conditions, including requirements for compensatory mitigation (if any). Where feasible, the compensatory mitigation requirement may be combined with those for other mitigation measures or mitigation required for the CWA Section 404 and 401 permits. These conditions may include the following measures:</p> <ul style="list-style-type: none"> • <u>Pre-construction Measures</u>: Before any construction activities begin, a qualified wetland biologist will identify and flag the boundaries of all wetlands in the project area. Appropriate barriers (straw bales, silt, fences, etc.) will be installed near sensitive resources to prevent sedimentation outside the work areas. During construction, wetlands will be treated as exclusion areas and activities within them will be strictly limited to those pertaining to this permit application. • <u>SWPPP</u>: The construction contractor shall prepare and implement a SWPPP and associated BMPs. • <u>Hazardous Substance Control Plan</u>. SMUD shall prepare and implement a construction-specific hazardous substance control and emergency response plan for quick, safe cleanup of accidental spills. • <u>Buffer from Drainages</u>. All staging and stockpile areas will be adjacent to the proposed road crossings, but away from sensitive areas. A minimum buffer of 100 feet from drainages would be used for refueling and storage. • <u>Worker Education</u>: Prior to construction, Environmental Awareness Training will be provided to all construction workers. This will consist of tailgate environmental training sessions conducted by a qualified biologist for the purpose of informing all personnel about the wetlands and intermittent streams in the project area and the importance of spill prevention, emergency response measures, and proper implementation of BMPs. Any sensitive species in the project region will also be discussed. Personnel will be trained on the locations of sensitive areas and species as well as rules and methods for avoiding these resources. They will also be briefed on all permit conditions as well as the potential disciplinary actions that could result from violations of state or federal laws. • <u>Construction Monitoring</u>. A qualified biologist will be on site during grading and construction activities to ensure protection of biological and other resources. • <u>Erosion Control</u>: Erosion control and slope stabilization best management practices will be implemented. These practices may include installation of orange construction fencing, silt fencing, hay wattles, hay bales and other protective measures to avoid impacts to unvegetated areas. 	Before and during construction. Before construction, SMUD will submit 1602 Permit application to CDFW. If 1602 Permit is issued by CDFW, SMUD will implement conditions.	During construction.	SMUD, Qualified Biologists, Contractor	SMUD, CDFW	Project components with potential to affect jurisdictional areas.

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	<p>Mitigation Measure 3.3-13d: Avoid and minimize potential effects on waters of the United States from horizontal directional drilling.</p> <p>SMUD will implement the following mitigation measures to avoid and minimize potential effects on aquatic resources from horizontal directional drilling underneath drainage and swale features during installation of the underground home run collection lines:</p> <ul style="list-style-type: none"> • SMUD will provide notification regarding the HDD to CDFW as part of the streambed alteration agreement application. SMUD will assign a qualified biological monitor with previous HDD monitoring experience and knowledge of the environmental sensitivities of the project area to monitor all HDD activities. The monitor shall be on-site for the duration of HDD activities and shall provide brief reports of daily activities to CDFW. • SMUD's biologist shall conduct on-site briefings for all HDD workers to ensure that all field personnel understand the locations of aquatic resources and their responsibility for timely reporting of frac-outs. • Barriers (e.g., straw bales, sedimentation fences) shall be erected between the bore site and all nearby aquatic resources before drilling to prevent any material from reaching aquatic resource areas. The distance between the bore site and aquatic resource areas shall be compliant with requirements for protective setback boundaries as specified the CDFW permit. • If the biological monitor suspects a potential frac-out that is not yet visible at the surface (e.g., loss of bentonite slurry in the drill pit but no frac-out at the surface), the HDD contractor shall immediately cease HDD activities and implement measures to reduce the potential for a frac-out (e.g., increase the density of the drilling mud or reduce the pressure of the drill). The contractor shall then be allowed to continue HDD activities. • The HDD contractor shall keep necessary response equipment and supplies (e.g., vacuum truck, straw bales, sediment fencing, sand bags) on-site during HDD operations so that they are readily available in the event of a frac-out. • SMUD shall prepare a frac-out contingency plan. In the event a frac-out is detected, the HDD contractor shall implement the following measures to reduce or minimize effects on the affected aquatic resource: <ul style="list-style-type: none"> ○ All work shall stop until the frac-out has been contained and cleaned up. ○ The frac-out area shall be isolated with straw bales, sandbags, or silt fencing to surround and contain the drilling mud; cleanup shall be performed using a vacuum truck supported by construction workers on foot using hand tools, as necessary. (To avoid affecting the stream bed and banks, mechanized equipment shall not be used to scoop or scrape up frac-out materials.) ○ If a frac-out occurs, SMUD shall notify the appropriate jurisdictional agency (USACE, the Central Valley RWQCB, and/or CDFW) by telephone and in writing (email is acceptable) within 24 hours. The required notification shall describe the frac-out and cleanup measures implemented. <p>If a frac-out occurs and, based on consultation with appropriate agencies, is considered to have negatively affected waters of the United States, SMUD will implement appropriate measures to restore the area to pre-HDD conditions in consultation with the permitting agencies.</p>	<p>Before and during construction.</p> <p>Before construction, SMUD will provide notification regarding HDD to CDFW as part of streambed alteration agreement application.</p> <p>Before construction, SMUD will prepare a frac-out contingency plan.</p> <p>Avoidance and minimization measures will be implemented during construction.</p> <p>If a frac-out occurs, measures will be taken to stop and contain frac-out and applicable jurisdictional agency/agencies will be contacted.</p>	During construction.	SMUD, Qualified Biologists, Contractor	SMUD	HDD activities near or under jurisdictional features.
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	<p>Mitigation Measure 3.3-13e: Conduct worker awareness training.</p> <p>SMUD will implement Mitigation Measure 3.3-1b, "Develop and Implement a Worker Environmental Awareness Program," to include specific information regarding wetlands and other waters that occur on the project site and that either will be affected or have been identified for avoidance. Training will be conducted before the start of construction and will include information about the locations and extent of wetlands and other waters, methods of resource avoidance, permit conditions, and possible fines for violating permit conditions and federal and/or state environmental laws.</p>	<p>Before and during construction, operations-maintenance, and decommissioning.</p> <p>Ongoing WEAP training.</p>	During construction, operations-maintenance, and decommissioning.	SMUD, Qualified Biologists, Contractor	SMUD	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	Mitigation Measure 3.3-13f: Restore temporarily affected waters of the United States. SMUD will require the construction contractor to restore temporarily disturbed wetlands and other waters of the United States by returning them to preconstruction conditions after construction in accordance with the project's reclamation and restoration plan (Mitigation Measure 3.3-12c). SMUD will comply with all conditions and requirements of federal and state permits obtained for the project.	During construction. See MM 3.3-12c	During construction.	SMUD, Qualified Biologists, Contractor	SMUD	All project components affecting waters of the US.
Biological Resources	Impact 3.3-13: Loss and degradation of federally protected waters of the United States.	Mitigation Measure 3.3-13g: Compensate for loss of waters of the United States. The acreage and function of all wetlands and other waters lost as a result of project implementation will be replaced and restored on a "no-net-loss" basis. SMUD will compensate for the loss of aquatic resources by purchasing credits from a USACE-approved mitigation bank; purchasing in-lieu fee credits; or restoring, preserving, creating, or enhancing similar habitats at another USACE-approved mitigation area as determined during CWA Section 404 and Section 401 permitting. The minimum wetland compensation ratio to achieve no net loss of the functions and services of wetlands and other waters will be at least 1:1. Final ratios will be determined during the permitting process.	Before construction during permit process.	N/A	SMUD	SMUD	All project components affecting waters of the US.
Archaeo-logical, Historical, and Tribal Cultural Resource	Impact 3.4-1: Impacts on unique archaeological resources.	Mitigation Measure 3.4-1a: Avoid or conduct subsurface testing and/or monitoring during construction in areas with high potential for the presence of buried archaeological sites. The construction contractor shall avoid conducting ground-disturbing activities in the few locations within the direct APE that have high or the highest potential for buried archaeological sites. If these areas cannot be avoided and project-related ground disturbance in those areas would be sufficiently deep that they could encounter buried archaeological resources, then additional actions may be necessary to mitigate any impacts on as-yet unidentified buried resources. These minimization efforts could include conducting subsurface testing before project construction and/or monitoring during the construction period. In the event that a historic-period archaeological site (such as concentrated deposits of bottles or bricks with makers marks, amethyst glass, or other historic refuse) is uncovered during grading or other construction activities, all ground-disturbing activity within 100 feet of the discovery shall be halted until a qualified archaeologist can assess the significance of the find. SMUD will be notified of the potential find and a qualified archeologist shall be retained to investigate its significance. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either a historical resource or a unique archaeological resource), the archaeologist shall work with SMUD to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic-period archaeological resources, they shall be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries shall be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, analyzes and interprets the results.	Before and during construction. Before construction, SMUD's Archaeologist shall conduct subsurface testing and/or mark locations within the direct APE as environmentally sensitive areas (ESAs) to be avoided by construction. During construction, monitoring will be conducted in locations within the direct APE that cannot be avoided.	Before and during construction.	SMUD, Qualified Archaeologists, Contractor	SMUD	All project components in APEs
Archaeo-logical, Historical, and Tribal Cultural Resource	Impact 3.4-1: Impacts on unique archaeological resources.	Mitigation Measure 3.4-1b: Prior to the start of construction, SMUD shall provide worker awareness training to the construction contractor and SMUD's project superintendent regarding the potential for cultural and tribal cultural resources that could be encountered during ground disturbance, the regulatory protections afforded to such finds, and the procedures to follow in the event of discovery of a previously unknown resource,	Before and during construction. Before construction, SMUD to provide	Before and during construction.	SMUD, Qualified Archaeologists, Contractor	SMUD and UAIC	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		including notifying SMUD representatives. SMUD shall invite representatives of UAIC to periodically inspect the active areas of the project, including any soil piles, trenches, or other disturbed areas. UAIC shall be notified at least 48 hours prior to start of construction. In the event that tribal representatives or construction workers find evidence of potential tribal cultural resources, the procedures identified in Mitigation Measure 3.4-1c and 3.4-2 shall be implemented.	WEAP training to workers. UAIC to be notified at least 48 hours prior to start of construction. Ongoing WEAP training for new workers.				
Archaeological, Historical, and Tribal Cultural Resource	Impact 3.4-1: Impacts on unique archaeological resources.	<p>Mitigation Measure 3.4-1c: Halt ground-disturbing activity upon discovery of subsurface archaeological features.</p> <p>If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”), that could conceal cultural deposits are discovered during construction, all ground-disturbing activity shall cease within 100 feet of the resource(s) discovered. A qualified cultural resources specialist and Native American representatives and monitors from culturally affiliated Native American Tribes shall assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations shall be documented in the project record. For any recommendations made by interested Native American Tribes that are not implemented, the project record shall provide a justification explaining why the recommendation was not followed.</p> <p>If the qualified archaeologist determines the find to be significant (because the find constitutes either a historical resource, a unique archaeological resource, or a tribal cultural resource), and if an adverse impact on a TCR, unique archaeology, or other cultural resource occurs, then SMUD shall consult with interested Native American groups and individuals regarding mitigation contained in PRC Sections 21084.3(a) and 21084.3(b) and State CEQA Guidelines Section 15370. Potential mitigation measures developed in coordination with interested Native American groups may include:</p> <ul style="list-style-type: none"> • preservation in place (the preferred manner of mitigating impacts on archaeological sites), • archival research, • replacement of cultural items for educational or cultural purposes, • preservation of substitute TCRs or environments and/or subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan). 	During construction. If any prehistoric or historic-era subsurface archaeological features or deposits are discovered during construction, all ground-disturbing activity shall cease within 100 feet of the resource(s) discovered. Involve qualified cultural resource specialist and Native American representatives as applicable.	During construction.	SMUD, Qualified Archaeologist, Contractor	SMUD, Native American representative(s)	All project components
Archaeological, Historical, and Tribal Cultural Resource	Impact 3.4-2: Impacts on tribal cultural resources.	<p>Mitigation Measure 3.4-2: Complete AB 52 consultation.</p> <p>SMUD concluded consultation with the UAIC and Wilton Rancheria under AB 52. If TCRs are identified that have the potential to be adversely affected by the project, SMUD shall notify Tribal Historic Preservation Officer Matthew Moore (THPO@auburnrancheria.com) and Lou Griffin (hgriffin@wiltonrancheria-nsn.gov) should an inadvertent discovery of TCRs occur, and will develop mitigation measures in consultation with interested Native American groups and individuals to minimize those impacts. These mitigation measures could include the following or equally effective mitigation measures (as identified in PRC Section 21084.3):</p> <ol style="list-style-type: none"> (1) Avoidance and preservation of the resources in place, including but not limited to planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria. (2) Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including but not limited to the following: 	During construction. If inadvertent discovery during construction, SMUD will notify Tribal Historic Preservation Officers and develop mitigation measures in consultation with interested Native American groups and individuals to minimize impacts.	During construction.	SMUD and Qualified Archaeologist	SMUD	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		(A) protecting the cultural character and integrity of the resource; (B) protecting the traditional use of the resource; or (C) protecting the confidentiality of the resource. (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places. (4) Protecting the resource. (5) Preserving substitute TCRs, resources, or environments.					
Archaeo-logical, Historical, and Tribal Cultural Resource	Impact 3.4-3: Impacts on previously unidentified human remains.	Mitigation Measure 3.4-3: Halt ground-disturbing activity upon discovery of human remains. If human remains are discovered during any demolition/construction activities, potentially damaging ground-disturbing activities within 100 feet of the remains shall be halted immediately, and SMUD will notify the Solano County coroner and the NAHC immediately, according to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC shall be followed during the treatment and disposition of the remains. SMUD will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. PRC Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains.	During construction. If human remains are discovered, potentially damaging ground-disturbing activities within 100 feet of the remains will be halted immediately. SMUD will notify Solano County coroner and the NAHC immediately.	During construction.	SMUD, Qualified Archaeologists, Contractor	SMUD, Solano County, NAHC	All project components
Geology and Soils	Impact 3.5-1: Substantial soil erosion or loss of topsoil.	Mitigation Measure 3.5-1: Prepare and implement a SWPPP and associated BMPs. Before any ground-disturbing activities begin, the construction contractor shall apply for and maintain coverage under the Construction General Permit. The contractor shall prepare and implement a SWPPP, including an erosion control plan, that includes erosion control measures and construction waste containment measures to ensure that waters of the United States and the state are protected during and after project construction. The SWPPP shall include site design measures to minimize off-site stormwater runoff that might otherwise affect surrounding habitats. The SWPPP shall be provided to SMUD for review and approval before it is provided to the SWRCB. The Central Valley Regional Water Quality Control Board and/or San Francisco Bay Regional Water Quality Control Board will review and monitor the effectiveness of the SWPPP through mandatory reporting by SMUD and the construction contractor as required. The SWPPP shall be prepared with the following objectives: <ul style="list-style-type: none"> Identify all pollutant sources, including sources of sediment, that may affect the quality of stormwater discharges from construction of the project. Identify BMPs that effectively reduce or eliminate pollutants in stormwater discharges and authorized nonstormwater discharges from the site during construction to the Best Available Technology/Best Control Technology standard. Provide calculations and design details as well as BMP controls for site run-on that are complete and correct. Identify project discharge points and receiving waters. Provide stabilization BMPs to reduce or eliminate pollutants following construction. The construction contractor shall implement the SWPPP, including all BMPs, and shall inspect all BMPs during construction. Potential SWPPP BMPs could include but would not be limited to the following: <ul style="list-style-type: none"> Preserve existing vegetation where possible. 	Before and during construction. Before construction, contractor shall apply for and maintain coverage under the Construction General Permit. Before construction, the contractor shall prepare and implement a SWPPP, including erosion control plan. Contractor shall provide SWPPP to SMUD for review and approval before submitting to SWRCB.	During construction.	SMUD and Contractor	SMUD, CV-RWQCB, SFB-RWQCB	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<ul style="list-style-type: none"> Roughen the surfaces of final grades to prevent erosion, decrease runoff, increase infiltration, and aid in vegetation establishment. Place riparian buffers or filter strips along the perimeter of the disturbed area to intercept pollutants before off-site discharge. Place fiber rolls around on-site drain inlets to prevent sediment and construction-related debris from entering inlets. Place fiber rolls along down-gradient disturbed areas of the site to reduce runoff flow velocities and prevent sediment from leaving the site. Place silt fences down-gradient of disturbed areas to slow down runoff and retain sediment. Stabilize the construction entrance to reduce the tracking of mud and dirt onto public roads by construction vehicles. Stage excavated and stored construction materials and soil stockpiles in stable areas and cover or stabilize materials to prevent erosion. Stabilize temporary construction entrances to limit transport/introduction of invasive species and control fugitive dust emissions. 					
Geology and Soils	Impact 3.5-2: Location of the project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project.	<p>Mitigation Measure 3.5-2: Conduct a site-specific geotechnical investigation.</p> <p>Before final design of the project, the construction contractor shall complete a design level geotechnical investigation and report for the project, to be prepared by a California Registered Civil Engineer or Geotechnical Engineer. The report will set forth design and construction measures intended to ensure site stability in compliance with applicable seismic and building codes. The report shall address and make recommendations on the following:</p> <ul style="list-style-type: none"> road, pavement, and parking area design; structural foundations; grading practices; erosion/winterization; special problems discovered on-site (e.g., groundwater, expansive/unstable soils); and slope stability. <p>All recommendations of the geotechnical report shall be incorporated into the construction plans and specifications that are reviewed and stamped by a licensed engineer of the appropriate discipline. SMUD must include the measures in the contract for implementation by the construction contractor for the duration of construction related activities.</p>	Before final design of project, contractor to complete a design level geotechnical investigation and report for project. During construction, implement design and construction measures to ensure site stability. Include all recommendations of geotechnical report into construction plans and specifications.	Before and during construction.	SMUD and Contractor	SMUD	All project components
Geology and Soils	Impact 3.5-3: Creation of a substantial risk as a result of expansive soils.	<p>Mitigation Measure 3.5-3: Implement Mitigation Measure 3.5-2, "Implement all recommendations from the geotechnical investigation."</p> <p>The construction contractor shall implement Mitigation Measure 3.5-2, above, which requires the completion of a design level geotechnical investigation and report for the project and the implementation of all design and construction measures contained therein.</p>	See MM 3.5-2	See MM 3.5-2	See MM 3.5-2	See MM 3.5-2	See MM 3.5-2
Geology and Soils	Impact 3.5-4: Degradation or destruction of a unique paleontological resource.	<p>Mitigation Measure 3.5-4: Conduct a site-specific paleontological resource investigation and implement identified protective measures.</p> <p>Before the start of any ground-disturbing activities, SMUD shall have prepared a site-specific analysis of paleontological resources. At a minimum, the site-specific analysis shall include a review of the types of the geologic formation(s) present at the project site and a determination of the likelihood that those formation(s) would contain a "unique paleontological resource" as stated in Title 14, California Code of Regulations, Appendix G (the CEQA checklist). If a site-specific analysis determines that a</p>	Before and during construction. Before construction, a site-specific analysis of paleontological	Before and during construction.	SMUD, Qualified paleontologist, Contractor	SMUD	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		<p>project may have an adverse effect on a “unique paleontological resource,” project-specific mitigation measures shall be identified and implemented to address the following requirements:</p> <ul style="list-style-type: none"> • Cessation of work in the vicinity of the find and notification to SMUD. • Retention of a qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan, which may include some or all of the following elements: a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. • Implementation of recommendations made by the paleontologist, where SMUD determines that such recommendations are necessary and feasible. <p>All recommendations of the report shall be incorporated into the construction plans and specifications that are reviewed and stamped by a licensed engineer of the appropriate discipline. SMUD must include the measures in the contract for implementation by the construction contractor for the duration of construction related activities.</p>	<p>resources will be prepared.</p> <p>All recommendations of the report shall be incorporated into the construction plans and specifications.</p> <p>Retention of qualified paleontologist if necessary.</p>				
Hazards and Hazardous Materials	Impact 3.7-1: Exposure of people and the environment to hazardous materials.	<p>Mitigation Measure 3.7-1a: Implement Mitigation Measure 3.5-1, “Prepare and implement a SWPPP and associated BMPs.”</p> <p>The contractor shall implement Mitigation Measure 3.5-1 listed in Section 3.5, “Geology, Soils, and Mineral Resources.” This measure requires the preparation of a project-specific SWPPP and implementation of the SWPPP by the construction contractors, including all necessary BMPs.</p>	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1
Hazards and Hazardous Materials	Impact 3.7-1: Exposure of people and the environment to hazardous materials.	<p>Mitigation Measure 3.7-1b: Establish and implement an environmental training program.</p> <p>Before the start of construction, SMUD or its contractor shall establish an environmental training program to communicate environmental concerns and appropriate work practices to all field personnel. The training program shall cover the use of hazardous materials, waste management, spill prevention, emergency response measures, and proper implementation of BMPs. The program shall emphasize site-specific physical conditions to improve hazard prevention (e.g., identification of potentially hazardous substances) and shall include a review of all site-specific plans, including but not limited to the project’s SWPPP, health and safety plan (as required by OSHA), fugitive dust control plan, and hazardous substances control and emergency response plan.</p>	<p>Before and during construction.</p> <p>Before construction, give WEAP training.</p> <p>Ongoing WEAP training to new employees during construction.</p>	Before and during construction.	SMUD and/or Contractor	SMUD	All project components
Hazards and Hazardous Materials	Impact 3.7-1: Exposure of people and the environment to hazardous materials.	<p>Mitigation Measure 3.7-1c: Prepare and implement a hazardous substance control and emergency response plan.</p> <p>Before the start of construction, SMUD or its contractor shall prepare a construction-specific hazardous substance control and emergency response plan. The plan shall include preparations for quick and safe cleanup of accidental spills; prescribe procedures for handling hazardous materials to reduce the potential for a spill during construction; and include an emergency response program to ensure quick and safe cleanup of accidental spills. The hazardous substance control and emergency response plan shall also identify BMPs in the event a spill occurs. BMPs may include but are not limited to the following: use of oil-absorbent materials, tarps, and storage drums to contain and control any minor releases; and storage and use of emergency-spill supplies and equipment in locations adjacent to work and staging areas.</p> <p>The hazardous substance control and emergency response plan shall identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, will be permitted.</p>	<p>Before and during construction.</p> <p>Before the start of construction, SMUD or its contractor shall prepare a construction-specific hazardous substance control and emergency response plan.</p> <p>Implement plans during construction.</p>	During construction.	SMUD or Contractor	SMUD	All project components
Hazards and Hazardous Materials	Impact 3.7-1: Exposure of people and the environment to hazardous materials.	<p>Mitigation Measure 3.7-1d: Prepare and implement a spill prevention, control, and countermeasures (SPCC) plan.</p> <p>If more than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), SMUD’s construction contractor shall prepare and implement a SPCC plan in accordance with state and federal requirements, including 40 CFR 112. The SPCC plan shall identify engineering and</p>	<p>Before and during construction.</p> <p>If more than 1,320 gallons of petroleum products will be stored on-site</p>	During construction.	Contractor	SMUD	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		containment measures for preventing releases of oil into waterways. The SPCC plan shall be submitted to SMUD for review and approval before the start of operations, or during construction. If less than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), this mitigation measure is not required.	(excluding vehicles), SMUD's construction contractor shall prepare and implement a SPCC plan in accordance with state and federal requirements.				
Hazards and Hazardous Materials	Impact 3.7-1: Exposure of people and the environment to hazardous materials.	<p>Mitigation Measure 3.7-1e: Prepare and implement a hazardous materials business plan.</p> <p>If the project will use or store hazardous materials equal to or greater than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases, SMUD's construction contractor shall prepare a hazardous materials business plan that will conform with Solano County Environmental Health requirements. The contractor shall file the plan with SMUD annually. The hazardous materials business plan shall identify site activities; list the contact information for the business owner/operator; provide an inventory of hazardous materials used on-site; provide a facilities map; and identify an emergency response plan/contingency plan.</p> <p>During the construction phase, if threshold quantities of any hazardous materials are stored on-site for more than 90 consecutive days, then the hazardous materials business plan shall be filed and maintained for as long as any of those thresholds are met or exceeded. During the operations phase, if the threshold for any hazardous materials is met or exceeded for more than 30 consecutive days, then the hazardous materials business plan shall be to SMUD and shall be maintained as long as the thresholds are met or exceeded. The regulations require annual submittal of the hazardous materials business plan as long as the project meets the conditions for the continued applicability of the regulations.</p> <p>If less than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases will be used or stored on-site, this mitigation measure is not required.</p>	Before and during construction. Contractor shall prepare a hazardous materials business plan that will conform with Solano County Environmental Health requirements. During construction, the hazardous materials business plan shall be filed and maintained. During the operations, the hazardous materials business plan shall be maintained.	Before and during construction.	SMUD and Contractor	SMUD	All project components
Hazards and Hazardous Materials	Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction.	<p>Mitigation Measure 3.7-2a: Implement Mitigation Measures 3.7-1a through 3.7-1e.</p> <p>SMUD or its construction contractor shall implement Mitigation Measures 3.7-1a through 3.7-1e, listed above. These measures establish and require implementation of various plans to minimize the risk of accidental release of hazardous materials.</p>	See MM 3.7-1a through 3.7-1e	See MM 3.7-1a through 3.7-1e	See MM 3.7-1a through 3.7-1e	See MM 3.7-1a through 3.7-1e	See MM 3.7-1a through 3.7-1e
Hazards and Hazardous Materials	Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction.	<p>Mitigation Measure 3.7-2b: Delineate any construction areas where the presence of hazardous materials is known or suspected.</p> <p>Before the start of construction, SMUD or its contractor shall delineate construction areas where the presence of hazardous materials is known or suspected. Such areas shall be avoided during construction to the extent feasible. These areas include but are not limited to abandoned gas wells and underground gas pipelines. Underground utilities, such as gas pipelines and high-voltage lines, shall be identified and marked clearly. If necessary, appropriate encroachment permits shall be obtained before work begins.</p> <p>A Spill Discovery Response Plan shall be developed before construction begins. The plan shall be implemented in the event that hazardous materials are unexpectedly encountered during construction. The plan shall include instructions for work crews to stop work immediately, notify the appropriate emergency response agency, and in the case of natural gas pipelines, notify the pipeline operator.</p>	Before and during construction. Before construction, delineate construction areas where there are known or suspected hazardous materials. Avoid such areas during construction. Before construction, develop a Spill	Before and during construction.	SMUD and/or Contractor	SMUD	All project components

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
			Discovery Response Plan and implement during construction in the event that hazardous materials are encountered.				
Hazards and Hazardous Materials	Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction.	<p>Mitigation Measure 3.7-2c: Maintain access to gas wells.</p> <p>Should a gas well location be verified, SMUD and its construction contractor shall implement the following measures:</p> <ul style="list-style-type: none"> • Maintain physical access to any gas well encountered. • Ensure that the abandonment of gas wells is to current standards. • If one or more unknown wells is discovered during project development, immediately notify the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources so that the newly discovered well(s) can be incorporated into the records and investigated. Any wells found during implementation of the project, and any pertinent information obtained, shall be communicated to the Solano County Recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells. • Avoid performing work on any oil or gas well without written approval from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources in the form of an appropriate permit. This includes but is not limited to mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work. 	<p>Before and during construction.</p> <p>Before and during construction, if a gas well is located: maintain access, ensure abandonment of well(s) is to current standards, immediately notify DOGGR, avoid working on any oil or gas well without written approval from DOGGR.</p>	Before and during construction.	SMUD and Contractor	SMUD	All project components
Hazards and Hazardous Materials	Impact 3.7-3: Safety hazard to air traffic.	<p>Mitigation Measure 3.7-3: Mark and light wind turbine generators during construction.</p> <p>SMUD will e-file FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration, at least 60 days before the start of construction, so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary.</p> <p>To ensure proper conspicuity of turbines at night during construction, all WTGs shall be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting shall be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights shall be installed and operated at each level as construction progresses.</p> <p>An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, WTGs shall be lit with self-contained, solar-powered light-emitting diode (LED) steady red light fixtures that meet the photometric requirements of an FAA Type L-810 lighting system. The lights shall be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a Notice to Airmen (NOTAM) (D) to avoid lighting WTGs within the project site until completion of the entire project is prohibited.</p> <p>This measure includes temporary construction equipment such as cranes and derricks, which may be used during actual construction of the structures. However, this equipment shall not exceed a height of 200 feet. Separate notice shall be provided to the FAA for any equipment taller than 200 feet.</p>	<p>Before and during construction.</p> <p>At least 60 days before start of construction, SMUD to file Form 7460-2, Part 1 with FAA.</p> <p>Light all WTGs with temporary lighting once they reach a height of 200 ft or greater until permanent lighting is turned on.</p> <p>Light temporary construction equipment (i.e. cranes and derricks), which shall not exceed height of 200 ft.</p>	Before and during construction.	SMUD and Contractor	SMUD	WTGs and associated facilities (i.e. meteorological towers) and temporary construction equipment.

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Hazards and Hazardous Materials	Impact 3.7-4: Exposure of employees and the public to hazards from accidental rotor failure.	Mitigation Measure 3.7-4: Conduct Safety Evaluation of WTGs. The Contractor shall provide a safety evaluation of the proposed siting plan, and ensure that the design and layout of the Project considers the safety evaluation. The Contractor's safety evaluation shall include an analysis of the following types of failure that could occur: a. Blade Throw Risk Analysis: Probability of Loss of an entire blade by failure at the hub attachment. b. Tower Failure. Complete failure of the tower, particularly at the base. c. Rotor Delamination. Failure of the fiberglass rotor skin, resulting in flying fragments. d. Blade-Throw Strike. Impact of a failed rotor blade on the tubular tower	Before construction. Contractor to provide safety evaluation of proposed siting plan before construction.	Before construction.	Contractor	SMUD	All project components involving WTGs.
Hazards and Hazardous Materials	Impact 3.7-5: Exposure of people or structures to a significant risk of loss, injury, or death involving wildfires.	Mitigation Measure 3.7-5a: Prepare and implement a grass fire control plan. SMUD or its construction contractor will develop a grass fire control plan. The plan shall be implemented for use during construction and operation of the project to reduce potential impacts on public services relative to fire protection services in the project area. The plan shall include notification procedures and emergency fire precautions, as discussed in Section 4.8, "Hazards and Hazardous Materials." This shall include the training of construction workers in the use of firefighting equipment available on-site (e.g., fire extinguishers) and communicating with the Montezuma Fire Protection District. Additionally, the nearby Montezuma Fire Protection District stations are equipped for grass fires, and the proposed access roads for WTG maintenance shall be used to improve access by fire trucks during emergency situations and serve as a fire break. The operations and maintenance building shall be designed to SMUD's safety standards and shall include a fire alarm. In addition, construction and maintenance crews shall be trained in fire prevention, carry fire extinguishers in all vehicles, and have access to one or more water trucks.	Before and during construction, and operation-maintenance. Before construction, develop a Grass Fire Control Plan. Implement Plan during construction and operation. Training for construction and maintenance crews.	Before and during construction.	SMUD and Contractor	SMUD	All project components
Hazards and Hazardous Materials	Impact 3.7-5: Exposure of people or structures to a significant risk of loss, injury, or death involving wildfires.	Mitigation Measure 3.7-5b: Implement Mitigation Measure 3.11-1b, "Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions." SMUD will implement Mitigation Measure 3.11-2 listed in Section 3.11, "Transportation and Traffic." This measure requires the development and implementation of a plan to maintain emergency access during WTG transport and throughout the construction period.	See MM 3.11-1b	See MM 3.11-1b	See MM 3.11-1b	See MM 3.11-1b	See MM 3.11-1b
Hydrology and Water Quality	Impact 3.8-1: Short-term degradation of water quality.	Mitigation Measure 3.8-1a: Implement Mitigation Measure 3.5-1, "Prepare and implement a SWPPP and associated BMPs." SMUD shall prepare and the construction contractor to implement Mitigation Measure 3.5-1 listed in Section 3.5, "Geology, Soils, and Mineral Resources." This measure requires the construction contractor to implement a SWPPP, including all necessary BMPs.	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1	See MM 3.5-1
Hydrology and Water Quality	Impact 3.8-1: Short-term degradation of water quality.	Mitigation Measure 3.8-1b: Implement Mitigation Measure 3.7-1b, "Establish and implement an environmental training program." The construction contractor shall implement Mitigation Measure 3.7-1b listed in Section 3.7, "Hazards and Hazardous Materials." This measure requires SMUD to establish and require implementation of an environmental training program for all field personnel that communicates spill prevention, emergency response measures, and proper implementation of BMPs.	See MM 3.7-1b	See MM 3.7-1b	See MM 3.7-1b	See MM 3.7-1b	See MM 3.7-1b
Hydrology and Water Quality	Impact 3.8-1: Short-term degradation of water quality.	Mitigation Measure 3.8-1c: Implement Mitigation Measure 3.7-1c, "Prepare and implement a hazardous substance control and emergency response plan." The construction contractor shall implement Mitigation Measure 3.7-1c listed in Section 3.7, "Hazards and Hazardous Materials." This measure requires SMUD to prepare and implement a construction-specific hazardous substance control and emergency response plan for quick, safe cleanup of accidental spills.	See MM 3.7-1c	See MM 3.7-1c	See MM 3.7-1c	See MM 3.7-1c	See MM 3.7-1c

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
Hydrology and Water Quality	Impact 3.8-1: Short-term degradation of water quality.	Mitigation Measure 3.8-1d: Implement Mitigation Measure 3.7-1d, “Prepare and implement a spill prevention, control, and countermeasures plan.” The construction contractor shall implement Mitigation Measure 3.7-1d listed in Section 3.7, “Hazards and Hazardous Materials.” This measure requires SMUD to prepare and the construction contractor to implement a spill prevention control and closures plan to prevent the discharge of petroleum products into waterways.	See MM 3.7-1d	See MM 3.7-1d	See MM 3.7-1d	See MM 3.7-1d	See MM 3.7-1d
Transportation	Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses.	Mitigation Measure 3.11-1a: Create and implement a traffic control plan and notify the public of anticipated roadway obstructions. SMUD or its construction contractor will work with Caltrans, Solano County, and the City of Napa to determine the lowest hourly traffic flows on affected facilities and develop a traffic control plan. The traffic control plan shall specify travel times and days and provide for public notification of anticipated roadway obstructions before transporter travel days. Traffic control plan measures shall include the use of pilot cars for oversize loads; traffic safety measures, such as warning signs; coordination with local jurisdictions; and safety personnel to direct traffic as needed. To minimize impacts on roadway traffic flows, transporters shall travel under loaded conditions during off-peak hours and possibly during evenings or at night. The final plan shall be submitted to all affected agencies for review and approval. After agency approvals have been received, the traffic control plan shall be implemented during transport of the WTG components.	Before and during construction. Before construction, develop a Traffic Control Plan and implement during construction. Consult with other agencies.	Before and during construction.	SMUD and Contractor	SMUD, Caltrans, Solano County, City of Napa	All project components.
Transportation	Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses.	Mitigation Measure 3.11-1b: Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions. SMUD or its construction contractor will work with affected emergency services providers to develop and implement a plan to maintain emergency access during transport of WTG components and throughout the construction period. The plan shall identify alternative emergency access routes; the need to station emergency equipment in areas where access will be reduced; and notification protocols between SMUD, its contractors, and affected providers. The final plan shall be submitted to all affected agencies for review and approval. After agency approvals have been received, the emergency access plan shall be implemented during transport of WTG components and throughout the construction period as necessary.	Before and during construction. Consult with emergency services to develop and implement an Emergency Access Plan during transport of WTG components.	Before and during construction.	SMUD and Contractor	SMUD and affected agencies (Caltrans, Solano County, City of Napa)	During transport of WTG components.
Transportation	Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses.	Mitigation Measure 3.11-1c: Obtain an agency transportation permit for each load exceeding weight, length, width, and height standards. SMUD or its construction contractor will submit an application to Caltrans, Solano County, and the City of Napa for a transportation permit for each load that exceeds weight, length, width, or height standards. The applications shall identify the specific transporter to be used and provide details about the turbine components’ load specifications, the requested route, and the time and date of transport. All permit conditions shall be implemented during transport of WTG components.	Before and during construction. Submit transportation permit applications to affected agencies. Implement all permit conditions during transport of WTG components.	Before and during construction.	SMUD and Contractor	SMUD and affected agencies (Caltrans, Solano County, City of Napa)	During transport of WTG components.
Transportation	Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses.	Mitigation Measure 3.11-1d: Improve roadways to enable safe use or use shorter transporters, and obtain agency transportation permits for transport of extra-legal length vehicles. SMUD or its construction contractor will make improvements to public roads to enable delivery of WTG components and provide access for construction equipment. These improvements shall accommodate all turning movements of the maximum-size transporter. A detailed topographic survey shall be conducted to determine the exact limits, and to identify additional areas that may be affected. All roadway improvements shall be designed and implemented in close cooperation with Solano County (and other jurisdictions, if applicable).	During construction. Make improvements to public roads, as necessary, in cooperation with Solano County (and other jurisdictions, if applicable).	During construction.	SMUD and Contractor	SMUD and affected agencies (Solano County, etc.)	Roads used to transport WTG components.

Table 4-1 Summary of Impacts and Mitigation Measures

CEQA Issue Area	Impacts	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility		Applicable Project Component
					Implementation	Monitoring	
		An alternative mitigation measure is to use shorter transporters to reduce the impact, although this measure is also expected to require a reduction in the size of the WTG components, which likely will increase the number of trips if the overall turbine dimensions remain the same.	Conduct topographic survey.				
Transportation	Impact 3.11-2: Short-term increase in construction traffic on physically deficient roadway segments.	<p>Mitigation Measure 3.11-2: Monitor the physical condition of roadway segments along primary access routes to the project site and restore the physical condition of affected roadways to the extent damaged by the project.</p> <p>SMUD or its construction contractor will conduct a preconstruction survey and assessment of existing pavement conditions along SR 12 east, Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. If the preconstruction pavement conditions are deficient, the preconstruction pavement analysis shall establish the baseline for required improvements. If the preconstruction pavement conditions are acceptable, improvements shall be required only if the postconstruction pavement condition is deficient, and only to the extent that the project demonstrably contributed to such deficiencies. If deficient following construction, any segments of SR 12 east and Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road that are affected by the project shall be returned to preconstruction conditions after construction. Implementing this measure will ensure that construction activities will not worsen pavement conditions, relative to existing conditions.</p> <p>Before construction, SMUD will enter into mitigation agreements with Caltrans (for SR 12 east) and Solano County (for Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road) to verify the location, extent, timing, and fair-share cost to be paid by SMUD for any necessary pre- and postconstruction physical improvements. The fair-share amount will be either the cost to return the affected roadway segment to its preconstruction condition or a contribution to programmed planned improvements. Repairs may include overlays or other surface treatments.</p>	<p>Before and post-construction.</p> <p>Preconstruction survey and assessment of existing pavement conditions.</p> <p>Before construction, SMUD will make a good-faith effort to enter into mitigation agreements with Caltrans and Solano County.</p> <p>Repair of damaged roads post-construction as necessary.</p>	Before, during, and post-construction.	SMUD and Contractor	SMUD, Caltrans, Solano County	Roads used to transport WTG components.

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Appendix A

Technical Studies

SOLANO WIND ENERGY PROJECT

Wind Project Expansion Assessment

B&V PROJECT NO. 194957
B&V FILE NO. 40.0000

PREPARED FOR



Sacramento Municipal Utility District (SMUD)

4 JANUARY 2018

NO	Date	Revision Issue
0	01/04/2017	Final Report



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1.0 Executive Summary

Black & Veatch assessed options for repowering and expansion of the Solano Wind projects in the Montezuma Hills in Solano County, California. This effort included preparation of preliminary project layouts, energy production assessments, conceptual civil and electrical plans, capital and operational cost estimates, and a plan for studying vertical wind profiles on site. It was conducted in two revisions; one preliminary (“Revision 1”) and one follow on (“Revision 2”). The focus of Revision 1 was to assess the projects of interest prior to turbine vendor recommendations being provided to SMUD. Revision 2 adds analysis of turbine layouts and energy performance, road plans, collections system designs, and capital cost specific to two additional turbine models recommended by Vestas. For both revisions, the expansion is specific to two areas of the existing Solano Wind development area. Phase 1 is a currently operational installation of turbines owned by SMUD. Black & Veatch evaluated the phase for full repowering of turbines along with possible expansion of the phase to the east. Phase 4 is an opportunity for new development to the southwest portion of the project boundary, west of the operating Phase 3 wind project.

At the start of this effort, SMUD had not committed to any turbine make or model for the expansion. To begin Revision 1, Black & Veatch reviewed several possible turbines for site suitability and expected performance. These turbine options were then reviewed with SMUD and a single option was selected as the assumed turbine make and model until Revision 2 began. All turbine options considered as part of this effort are shown in Table 1-1.

Table 1-1 Options for Turbine Implementation Evaluated

Revision	Make	Model	Capacity (MW)	Hub Height	Rotor Diameter
1	GE Energy	GE2.3-116	2.30	80 m	116 m
1	Vestas	V110-2.0	2.00	80 m	110 m
1 & 2	Vestas	V126-3.45	3.45	87 m	126 m
2	Vestas	V136-4.20	4.20	82 m	136 m
2	Vestas	V150-4.20	4.20	105 m	150 m
1	Siemens	SWT2.3-108	2.30	80 m	108 m

After considering the Revision 1 above options, SMUD elected to assume the future installation of Vestas V126-3.45 turbines at both Phase 1 and Phase 4 for the duration of the revision. Revision 2 warranted additional consideration of Vestas V136-4.20 and Vestas V150-4.20 model turbines. Performance results from Revision 2 included additional loss assumptions beyond the wake losses considered in preliminary Revision 1 assessment. The resulting P50 annual energy production values found for each phase are provided in Table 1-2, Table 1-3, and Table 1-4.

Table 1-2 Vestas V126-3.45 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V126-3.45	8	27.6	12.2%	91.9	38.0%
Phase 1 Addn.	Vestas	V126-3.45	4	13.8	9.0%	46.5	38.4%
Phase 4	Vestas	V126-3.45	13	44.9	10.8%	142.5	36.2%
Total			25	86.3	11.0%	280.8	37.1%

Table 1-3 Vestas V136-4.20 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V136-4.20	6	25.2	11.2%	81.7	37.0%
Phase 1 Addn.	Vestas	V136-4.20	4	16.8	12.1%	52.2	35.5%
Phase 4	Vestas	V136-4.20	12	50.4	9.7%	156.9	35.5%
Total			22	92.4	10.6%	290.8	35.9%

Table 1-4 Vestas V150-4.20 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V150-4.20	5	21.0	8.0%	79.4	43.2%
Phase 1 Addn.	Vestas	V150-4.20	4	16.8	8.9%	61.7	41.9%
Phase 4	Vestas	V150-4.20	10	42.0	8.1%	151.0	41.0%
Total			19	79.8	8.3%	292.1	41.8%

With three viable turbine models and layouts for each aspect of the expansion known, Black & Veatch moved to conceptual designs of the major components of civil and electrical works at each phase and for each Revision 2 turbine option. Preliminary access road routes were prepared based on the developed turbine layouts, site terrain, environmental features, and existing infrastructure. Cost considerations were made for both required road distances and complexity of implementation when traversing complex terrain. Existing Phase 1 roads were utilized where practical, though some sections were considered too steep for delivery of large turbines.

Collection system design at Phase 1 focused on two options. The first option was to use the existing 21.6kV overhead line to Russell substation, while the second option was to install a new 34.5kV underground line to Russell 3 substation. Option 2 was determined to be the most feasible implementation and was considered the preferred choice for all Revision 2 designs. Black & Veatch also reviewed the options for the Phase 4 collection system and found that using the underground collection cable and existing feeder plus installing two new circuits to be the most economical option considering electrical limitations of the existing infrastructure.

The substation review revealed that minor work will need to be completed at Russell 3 Substation in order to accommodate the collection system options outlined above. The nature of

this minor work at Russell 3 Substation is detailed in Section 5.3. No additional work is required at Russell Substation for all options.

Following the conceptual design of each phase and for each Revision 2 turbine layout of the Solano Wind expansion, Black & Veatch completed cost estimates of implementation. This estimate excluded turbine procurement costs but did include decommission costs incurred through the repowering of Phase 1. The estimated total costs of engineering, procurement, construction (EPC) are provided below in Table 1-5.

Table 1-5 Estimated Costs of Implementation for Selected Turbine Models

Category	V126-3.45	V136-4.20	V150-4.20
Phase 1 Decommissioning	\$1,219,000	\$1,219,000	\$1,219,000
Substation and Interconnection	\$45,000	\$45,000	\$45,000
BOP	\$23,371,833	\$23,783,437	\$22,930,798
Wind Turbines - NOT INCLUDED	\$0	\$0	\$0
TOTAL PROJECT	\$24,635,833	\$25,047,437	\$24,194,798

These values assume that repower and expansion of Phase 1 will occur concurrently with new construction of Phase 4.

Black & Veatch additionally prepared a 10-year cost estimate of operations and maintenance (“O&M”) of the expansion portion of the project. The estimate was informed by existing agreements for Solano Wind 3, provided by SMUD and tailored by Black & Veatch according to industry experience. It was completed prior to the additional consideration of Vestas V136-4.20 and V150-4.20 turbines and focuses solely on the Vestas V126-3.45 turbine option. The primary results of this estimate are provided in Table 1-6 below.

Table 1-6 Operating Cost Estimate of Vestas V126-3.45 Layout

Year	Total Cost	\$/kW-yr
1	\$1,500,000	\$17,390
5	\$1,624,000	\$18,830
10	\$2,977,000	\$34,520
Cumulative 10 Year Total	\$22,118,000	\$25,650

The project area of Solano Wind is moderately complex with variably arranged ridgelines rising 15 to 30 meters above the site average elevation. It has been SMUD’s experience of the duration of operation of Solano Wind that wind patterns tend to be affected by the complexity of the local terrain in ways not easily explained intuitively. It was requested, as a final effort in the Revision 1 scope of work, that assistance be provided in designing a study aimed at measuring these wind patterns. A study design is provided in Section 7.0. It provides recommendations to SMUD for conducting a study of vertical wind speed profiles by use of remote sensing technology at various ridgeline locations across the expansion area. The intention is for unique and identifiable patterns to emerge depending on sensor location and ridgeline orientation.

2.0 Introduction

This report is presented by Black & Veatch as a summary of the recent two-part study of a possible expansion to the existing Solano Wind project, prepared for the Sacramento Municipal Utility District (SMUD). The primary purpose of this study was to prepare conceptual designs and cost estimates for repowering of the existing Phase 1 of Solano Wind and of the new construction of a new Phase 4. This effort required the development of preliminary layouts for each phase and the subsequent evaluation of the potential performance of the project using turbine technologies from several wind turbine suppliers. Three final turbine model options were then selected by SMUD and conceptual designs of site access roads, collection systems, and substation upgrades were completed. The sections to follow detail the Black & Veatch effort to provide SMUD with potential options for repower and expansion turbines, assist SMUD with the selection of the most likely options, and design conceptual EPC plans for implementation.

2.1 KEY ASSUMPTIONS AND STUDY LIMITATIONS

- Black & Veatch reviewed several potential wind turbine models based on current industry models and vendor recommendations as they apply to the specific wind patterns at Solano Wind. Changes to technologies offered by wind turbine suppliers in the future may have an impact on estimated annual energy production values (AEP).
- Performance based results contained herein are based on the assumption of use of Vestas V126-3.45 model turbines with 87 m hub heights, Vestas V136-4.20 model turbines with 82 m hub heights, or Vestas V150-4.20 model turbines with 105 m hub heights at expansion area locations. Changes to the selected model turbines or their locations will invalidate the applicability of performance results presented herein.
- No future development or repowering of surrounding wind projects was considered. If there is wind farm development in the vicinity of the Solano Wind project, then there may be a potential impact on the estimated AEP.
- Black & Veatch has assessed the provided information for accuracy and completeness. However, errors in the supplied information may affect the findings of this assessment.

3.0 Preliminary Performance Assessment

3.1 SITE DETAILS

Solano Wind consists of three project phases located in the Montezuma Hills in Solano County, California. The site is approximately 36 miles southwest of Sacramento, California. Montezuma Hills is a well-known and heavily developed wind area, and the Solano site is adjacent to several existing projects including Shiloh Wind 1 – 4, Montezuma Wind 1 & 2, High Winds Energy, and the EnXco 5 RePower. This study considers a potential repowering and expansion of Phase 1 of Solano Wind, at the eastern end of the project area, and potential development of a new Phase 4 at the southwestern end of the area.

3.2 SITE TOPOGRAPHY

The site consists of moderately sized ridgelines of varying rise and orientation. The elevation within the Solano Wind boundary averages approximately 35 meters, with ridgeline elevations averaging approximately 55 meters. Ridgelines are present within both the Phase 1 and Phase 4 areas. The vegetation consists mostly of grazing land with grass cover, and is largely barren of trees and other structures that might block the wind, with the exception of existing wind turbines. Areas of wetlands and ponds are located south of the project area, but away from the locations anticipated to be useful for turbine siting.

3.3 FACTORS AFFECTING SITE WIND SPEEDS

3.3.1 Surface Roughness

As the wind moves across the ground surface obstacles such as vegetation or structures impede its flow, reducing velocity of the wind through the lowest levels of the surface boundary layer. The surface roughness length is an indirect measure of this frictional effect. While surface roughness is expressed as a dimension of length, it is not a direct measure of the size of the object. Surface roughness length is a scalar value that characterizes the roughness of the ground terrain (including obstacles) which has an effect upon the vertical wind-speed profile. The project site is characterized by mostly short grasses; the corresponding surface roughness length for short grass is generally between 0.01 and 0.04 meters.

3.3.2 Terrain Features

The project is located on rolling terrain, with existing turbines located in higher elevation areas along the ridgelines, which are anticipated to have the greatest local wind resource. The terrain is complex and is typical of this area of California.

3.3.3 Air Density

The mean site elevation across the project area is 35 meters above mean sea-level (AMSL), with a variation of approximately 35 meters across the site. The average site air density was

calculated to be approximately 1.21 kg/m^3 , consistent with previous studies in this area of California. The air density calculation is based local area elevation and an assumed air density lapse rate of $-0.113 \text{ (kg/m}^3\text{)/km}$.

3.4 WIND RESOURCE DATA

Black & Veatch used publicly available wind resource information, along with onsite meteorological (MET) mast data, to prepare the models for estimated wind resource. After review of available MET mast locations as well as existing turbine locations, Black & Veatch determined that greater use could be gained through the use of wind data from the publically available National Renewable Energy Laboratory (NREL) Wind Toolkit as opposed to onsite MET mast data. The basis for this determination was the need to model existing turbines surrounding SMUD phases 1 and 4. Figure 3-1 shows the defined phases of Solano Wind with the locations of existing turbines expected to influence wind flows on new installations.

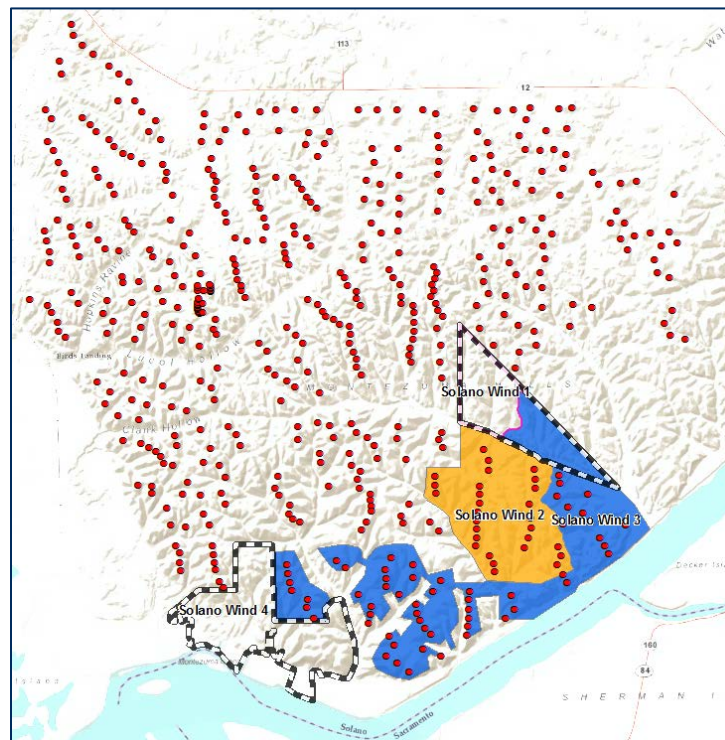


Figure 3-1 Wind turbines External to, but Influencing, Phases 1 and 4

In all, there are 525 turbines standing that may impact future project performance. It can be seen from Figure 3-1 above that the locations of these influencing turbines extend far beyond the boundary of Solano Wind. Use of NREL's Wind Toolkit dataset allows for full and consistent coverage of both the project area as well as all influencing turbine locations. Black & Veatch additionally considers it necessary to begin analysis with wind resource data uninfluenced by existing turbines in order to identify wake implication specific to particular projects and phases.

3.5 ENERGY PRODUCTION ESTIMATES FOR PRELIMINARY TURBINES

Based on the wind resource data collected from the NREL Wind Toolkit datasets, Black & Veatch estimated the potential energy production for Solano Wind Phases 1 and 4 for each of four scenarios. The intent for these scenarios was not to pinpoint or recommend a specific turbine model for implementation but rather to provide options of reasonably applicable turbine models for SMUD to review. The evaluation of these preliminary scenarios was part one (Revision 1) of the two-part study. Turbines from General Electric, Vestas, and Siemens were considered. Specific turbine models evaluated in Revision 1 are provided below in Table 3-1.

Table 3-1 Revision 1 Turbines Considered for Use in Expansion

Make	Model	Capacity (MW)	Hub Height	Rotor Diameter	Rated Wind Speed	IEC Class*
GE Energy	GE2.3-116	2.30	80 m	116 m	10.0	S
Vestas	V110-2.0	2.00	80 m	110 m	12.0	IIIA
Vestas	V126-3.45	3.45	87 m	126 m	12.0	IIA
Siemens	SWT2.3-108	2.30	80 m	108 m	11.5	IIB

Black & Veatch considered the turbines listed above to adequately encompass a spectrum of reasonable offerings to SMUD from turbine suppliers. This section details the Black & Veatch evaluation of turbines and results provided to Client for consideration prior to selecting final Revision 2 turbine models for further evaluations of performance and implementation.

3.5.1 Layout Development

SMUD provided Black & Veatch with land control boundaries and existing turbine locations. Based on this information and the wind resource data developed and reviewed in the section above, Black & Veatch developed project layouts at Phase 1 and Phase 4, for the GE, Vestas, and Siemens turbine options.

In developing the layouts, Black & Veatch first considered physical, environmental, and property line constraints which govern the available locations for wind turbines, collector lines, access roads, transmission lines, and related project facilities. Noteworthy restrictions applied when planning layouts include a physical limitation eliminating placement of wind turbines on terrain with slopes greater than 8.0 percent. Environmental restrictions considered prevented development near publically available wetland locations and FEMA defined 100 Year Floodplains.

Black & Veatch developed site layouts using Openwind®. Turbine spacing was chosen in view of the rotor diameter of the turbine model and wind resource. The minimum crosswind spacing between turbines is 2.0 rotor diameters. The minimum downwind spacing between rows is 8.0 rotor diameters. The primary wind direction was considered to be 270° which is consistent with measured site and long-term MERRA2 data. Layouts were developed with the aid of the Openwind® optimizer to maximize energy production based on changes in wind resource and wake loss across the site.

3.5.2 Site Climatology

Black & Veatch developed a model of each site wind resource utilizing Openwind®, a wind farm design software package developed by AWS Truepower. The Openwind® model develops site specific climatological conditions to estimate generation at the wind plant. Openwind® was used to derive wind resource grids, which provide a model for the varying wind resource across each unique site in the Portfolio. Wind resource grids are derived from representative site specific meteorological mast data. Background surface roughness values, based on observed land cover from the United States Geological Survey National Land Cover Dataset, were applied in the model according to terrain types. OpenWind® was then used to calculate wind resource grids at the respective hub heights of turbines present within and around the Solano Wind Boundary.

3.5.3 Wake Modeling

Black & Veatch also used Openwind® for wake modeling and project performance estimates. A wake model is used to determine the changes to the ambient wind speeds due to the effects of surrounding turbines at each turbine location within a wind farm. There are two available wake models in Openwind®, the Modified PARK model and the Eddy Viscosity model. Unlike the PARK wake model, the Eddy Viscosity model does not assume a linear wake expansion. Instead, it utilizes a two dimensional Computational Fluid Dynamics (CFD) calculation that employs a finite-difference solution of the Navier-Stokes equations for thin shear layers. Consideration of turbine-to-turbine wake losses makes the Eddy Viscosity model more accurate than the Modified PARK model. For this reason, Black & Veatch employed the Eddy Viscosity model to calculate the effective wind speeds and turbulence intensity for each turbine location for the energy production analyses.

3.6 PRELIMINARY ESTIMATE RESULTS

Table 3-2 Performance Results of Preliminary Screening

Phase	Make	Model	#WTGs	Phase Capacity (MW)	Wake Loss	Net Energy (GWh)*	Capacity Factor*
1	Vestas	V110-2.0	13	26.0	8.6%	113.0	50.0%
1	GE	GE2.3-116	13	29.9	9.1%	126.9	48.4%
1	Vestas	V126-3.45	12	41.4	10.0%	158.5	43.7%
1	Siemens	2.3-108	14	32.2	10.5%	130.7	46.3%
4	Vestas	V110-2.0	14	28.0	7.5%	116.8	47.6%
4	GE	GE2.3-116	14	32.2	8.1%	129.4	45.9%
4	Vestas	V126-3.45	13	44.9	9.1%	164.2	41.8%
4	Siemens	2.3-108	17	39.1	10.2%	146.8	42.8%

* Estimation Includes Array Efficiency Losses Only. Additional Losses ≈ 12% are Realistic

4.0 Final Performance Assessment

4.1 SCENARIO SELECTION FROM PRELIMINARY ESTIMATES

After review of the portfolio of options provided above in Table 3-2, SMUD selected the Vestas V126-3.45 model turbine as the option of choice. The selection was predicated on the perceived net benefit of maximizing energy production while minimizing the number of turbines. A Vestas model selection is likely to additionally provide simplicity to SMUD given existing operations and maintenance agreements with the company. The agreed upon layouts for the Vestas V126-3.45 option are provided below in Figure 4-1 and Figure 4-2.

4.2 ADDITIONAL SELECTIONS BY SMUD REQUEST

Toward the completion of Revision 1, it was recommended to SMUD by Vestas that the following options also be considered for implementation at Solano Phases 1 and 4.

Table 4-1 **Revision 2 Turbines Considered for Use in Expansion**

Make	Model	Capacity (MW)	Hub Height	Rotor Diameter	Rated Wind Speed	IEC Class*
Vestas	V136-4.20	4.20	82 m	136 m	13.5	IIB
Vestas	V150-4.20	4.20	105 m	150 m	12.0	IIIB

Following the same methodologies described in the sections 3.5.1, 3.5.2, and 3.5.3 above, Black & Veatch evaluated the options available to SMUD for locating these turbines within Solano Phase 1 and 4 boundaries. Adherence to required setbacks, dependent upon total turbine height, became a greater challenge during the siting of these turbines. As a result, it was necessary to reduce the number of turbines installed. The greater turbine capacity of 4.20 megawatts largely negates any negative impacts to the reduction in turbine quantities at each phase..

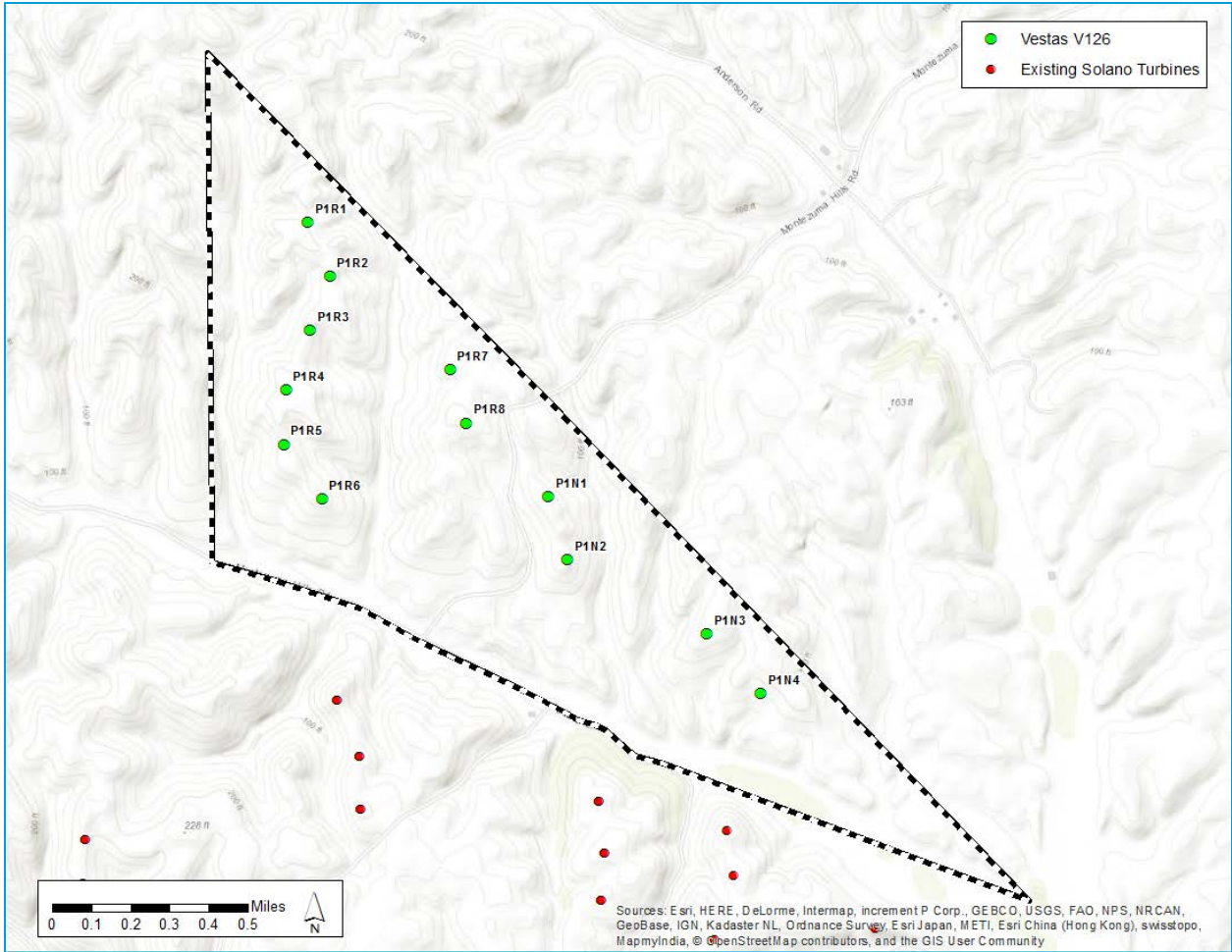


Figure 4-1 Phase 1 Turbine Layout (Vestas V126-3.45)

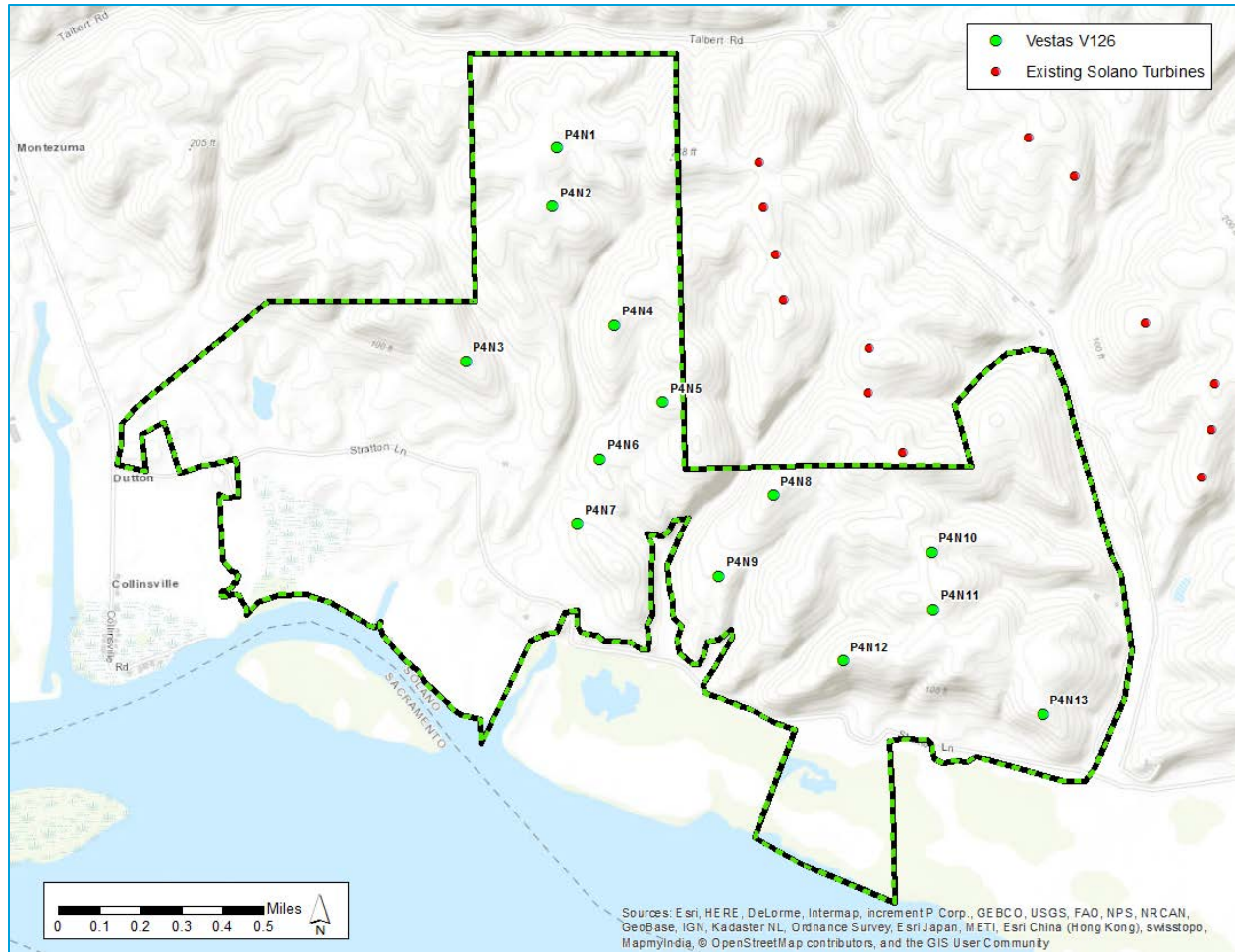


Figure 4-2 Phase 4 Turbine Layout (Vestas V126-3.45)

4.3 ADDITIONAL SELECTIONS BY SMUD REQUEST

Toward the completion of Revision 1, it was recommended to SMUD by Vestas that the following options also be considered for implementation at Solano Phases 1 and 4.

Table 4-1 Revision 2 Turbines Considered for Use in Expansion

Make	Model	Capacity (MW)	Hub Height	Rotor Diameter	Rated Wind Speed	IEC Class*
Vestas	V136-4.20	4.20	82 m	136 m	13.5	IIB
Vestas	V150-4.20	4.20	105 m	150 m	12.0	IIIB

Following the same methodologies described in the sections 3.5.1, 3.5.2, and 3.5.3 above, Black & Veatch evaluated the options available to SMUD for locating these turbines within Solano Phase 1 and 4 boundaries. Adherence to required setbacks, dependent upon total turbine height, became a greater challenge during the siting of these turbines. As a result, it was necessary to reduce the number of turbines installed. The greater turbine capacity of 4.20 megawatts largely negates any negative impacts to the reduction in turbine quantities at each phase.

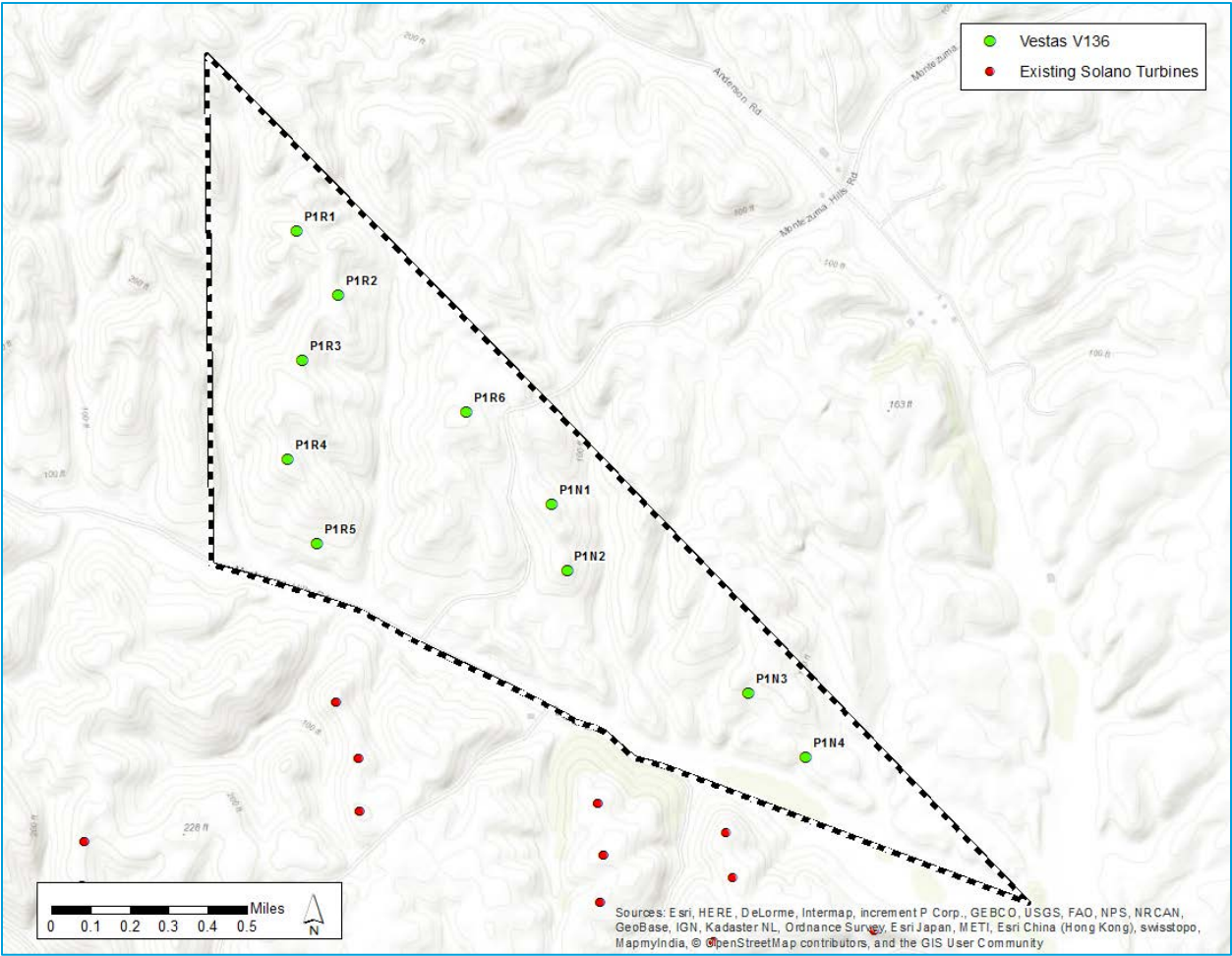


Figure 4-3 Phase 1 Turbine Layout (Vestas V136-4.20)

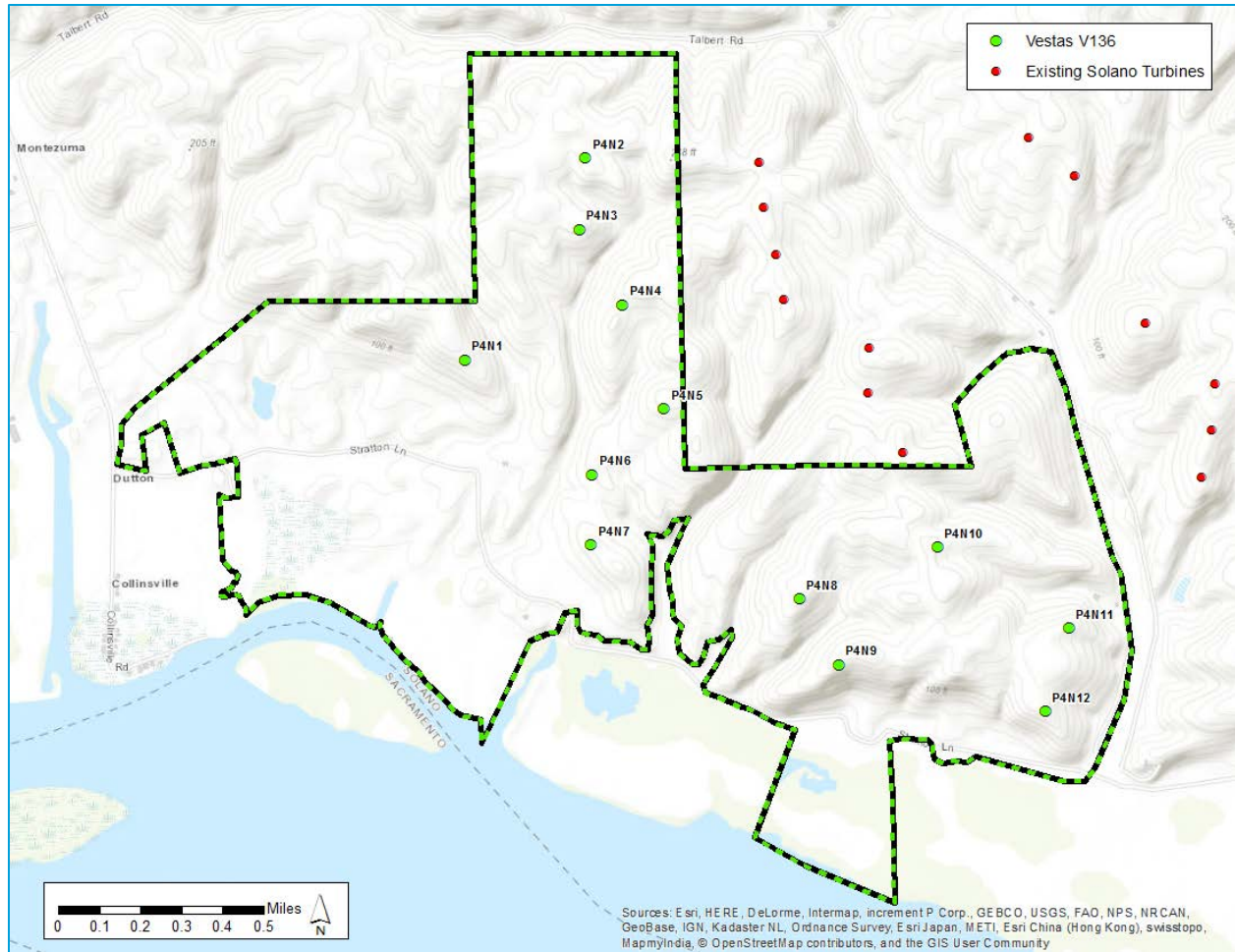


Figure 4-4 Phase 4 Turbine Layout (Vestas V136-4.20)

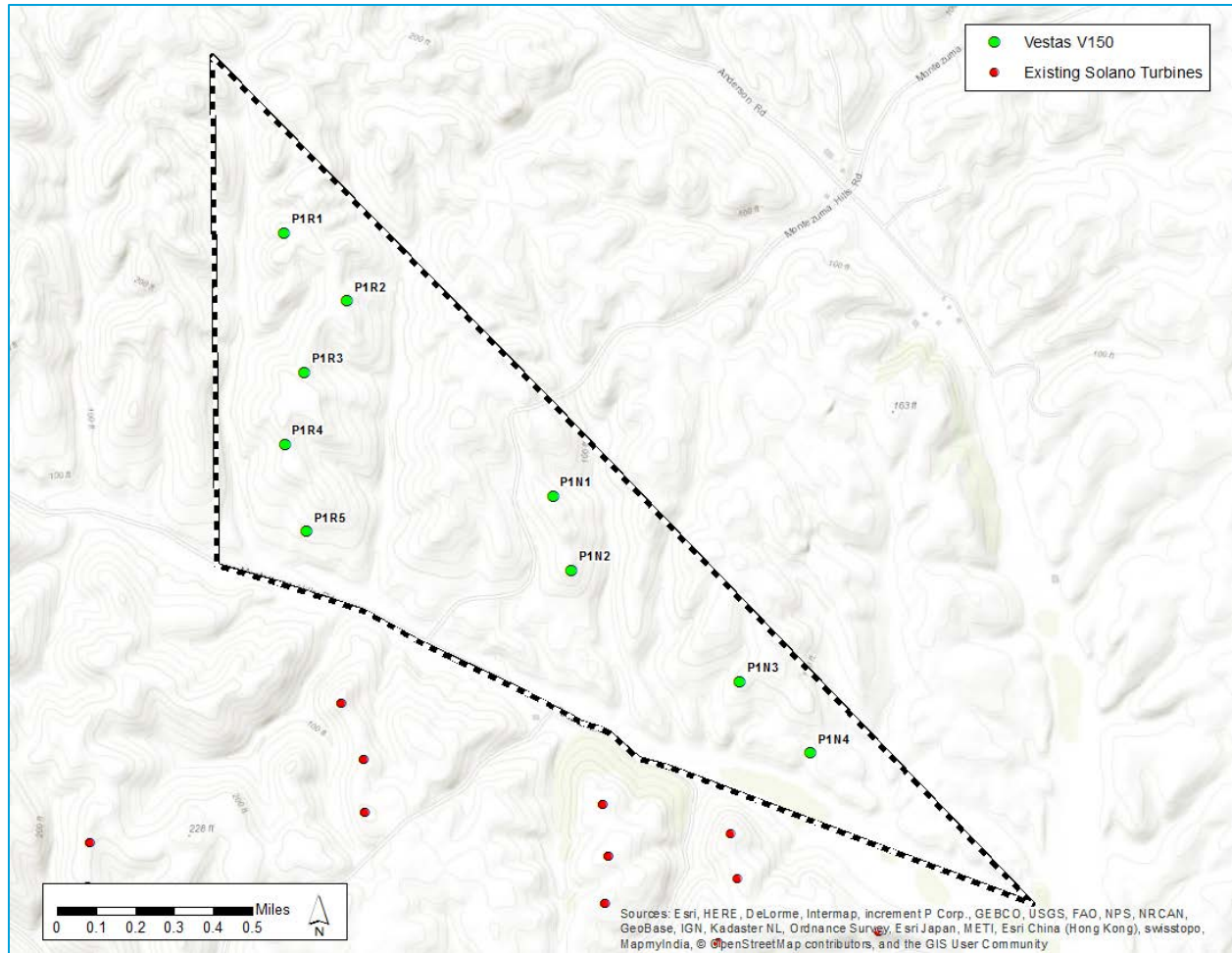


Figure 4-5 Phase 1 Turbine Layout (Vestas V150-4.20)

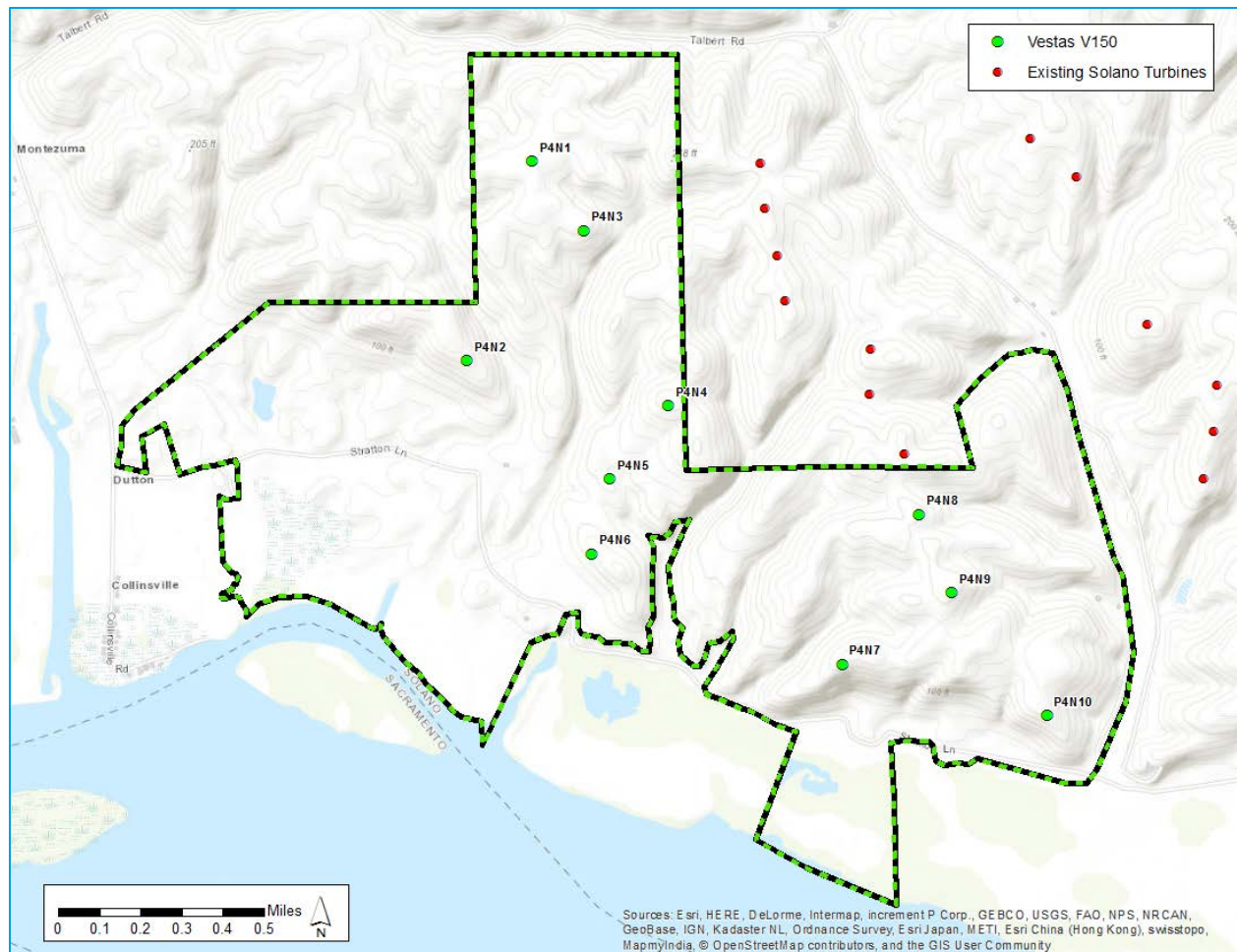


Figure 4-6 Phase 4 Turbine Layout (Vestas V150-4.20)

4.3.1 Additional Losses

Black & Veatch estimated the production losses that could potentially impact wind energy production at the Project site. Losses external to the Project site, including environmental (bird or bat) curtailment, and transmission losses and curtailment beyond the point of delivery were not considered in this analysis. Annual losses are shown in Table 4-2. Black & Veatch considered it reasonable to assume consistent losses, with the exception of Array Efficiency, across all selected turbine models. Losses are discussed in greater detail in Appendix E.

Table 4-2 Annual Energy Efficiency and Losses Applied to Estimates

Parameter	Project	Efficiency (%)			Loss (%)		
		V126	V136	V150	V126	V136	V150
Array Efficiency	Phase 1 Repower	87.8	88.8	92.0	12.2	11.2	8.0
	Phase 1 Addition	91.0	87.9	91.1	9.0	12.1	8.9
	Phase 4	89.2	90.3	91.9	10.8	9.7	8.1
Electrical Efficiency	All	97.5			2.5		
Turbine Availability	All	98.0			2		
Environmental	All	98.0			2.0		
Balance of Plant Maintenance	All	99.5			0.5		
Turbine Performance	All	98.0			2.0		
Utility Downtime	All	99.5			0.5		
Power Curve	All	98.0			2.0		
High Wind Hysteresis	All	99.5			0.5		
Wind Sector Management	All	100.0			0.0		
Total	Phase 1	77.8	78.7	81.5	22.2	21.3	18.5
Total	Phase 1 Addn.	80.7	77.8	80.7	19.3	22.2	19.3
Total	Phase 4	79.0	80.0	81.4	21.0	20.0	18.6

4.4 ESTIMATES FOR ANNUAL ENERGY PRODUCTION

The resulting energy and capacity factor estimates for each project site are provided below in Table 4-3, Table 4-4, and Table 4-5. The values were derived from modelling methodology presented in section 3 after the application of additional losses presented in Table 4-2.

Table 4-3 Vestas V126-3.45 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V126-3.45	8	27.6	12.2%	91.9	38.0%
Phase 1 Addn.	Vestas	V126-3.45	4	13.8	9.0%	46.5	38.4%
Phase 4	Vestas	V126-3.45	13	44.9	10.8%	142.5	36.2%
Total			25	86.3	11.0%	280.8	37.1%

Table 4-4 Vestas V136-4.20 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V136-4.20	6	25.2	11.2%	81.7	37.0%
Phase 1 Addn.	Vestas	V136-4.20	4	16.8	12.1%	52.2	35.5%
Phase 4	Vestas	V136-4.20	12	50.4	9.7%	156.9	35.5%
Total			22	92.4	10.6%	290.8	35.9%

Table 4-5 Vestas V150-4.20 P50 Annual Energy and Net Capacity Factor

Phase	Make	Model	#WTGs	Capacity (MW)	Wake Loss	Net Energy (GWh)	Capacity Factor
Phase 1	Vestas	V150-4.20	5	21.0	8.0%	79.4	43.2%
Phase 1 Addn.	Vestas	V150-4.20	4	16.8	8.9%	61.7	41.9%
Phase 4	Vestas	V150-4.20	10	42.0	8.1%	151.0	41.0%
Total			19	79.8	8.3%	292.1	41.8%

5.0 Civil and Electrical Design

5.1 SITE ROAD ACCESS

Terrain complexity within the Solano site poses a significant challenge for road routing. These roadways will be utilized for day-to-day project needs but more significantly used for turbine delivery. Roads will need to conform to minimum requirements for turbine delivery, including bearing capacity, width, radius, and incline restrictions. Black & Veatch has prepared preliminary access road routes based on the developed turbine layouts, site terrain, environmental features, and existing infrastructure. Cost considerations were made for both required road distances and complexity of implementation when traversing complex terrain. In order to limit construction costs, existing roads were utilized wherever possible. Road access details for each of the three selected turbine options are detailed below.

Access to Phase 1 was routed from the north via Montezuma Hills Road. Existing Phase 1 roads were utilized where practical, though some sections were considered too steep for delivery of large turbines. Talbert Lane and existing Phase 3 roads were used to access Phase 4. At the direction of SMUD, access to the western edge of the layouts is shown through adjacent property to the north, which is outside of the site boundary provided. Mapped road paths are shown in Figure 5-1 through Figure 5-7.

5.2 COLLECTION SYSTEM – PRELIMINARY ASSESSMENT

Black & Veatch reviewed potential collection system options for the Solano Phase 1 repower and Phase 4 addition. The particular options of interest for Phase 1 were the use of the existing 21.6kV overhead line to Russell substation or to install a new 34.5kV underground line to Russell 3 substation. Black & Veatch also reviewed the options for the Phase 4 collection system and found that using the underground collection cable and existing feeder plus installing two new circuits to be the most economical option while overcoming the electrical limitations. The preliminary collection system assessment was completed under the assumption that Vestas V126-3.45 model turbines are to be installed. Revision 2 collection system recommendations are provided in section 5.3 to follow. The remainder of section 5.2 is dedicated to presenting the Black & Veatch preliminary evaluation of collection system options for Phase 1 and Phase 4, assuming Vestas V126-3.45 model turbines are installed.

5.2.1 Phase 1, Option 1

Option 1 required the installation of new 21.5kV underground circuits with 5 turbines along with the reuse of the existing 21.5kV overhead line to Russell Substation and one new collection circuit with 7 turbines to Russell 3 substation. A map of the option is provided below.

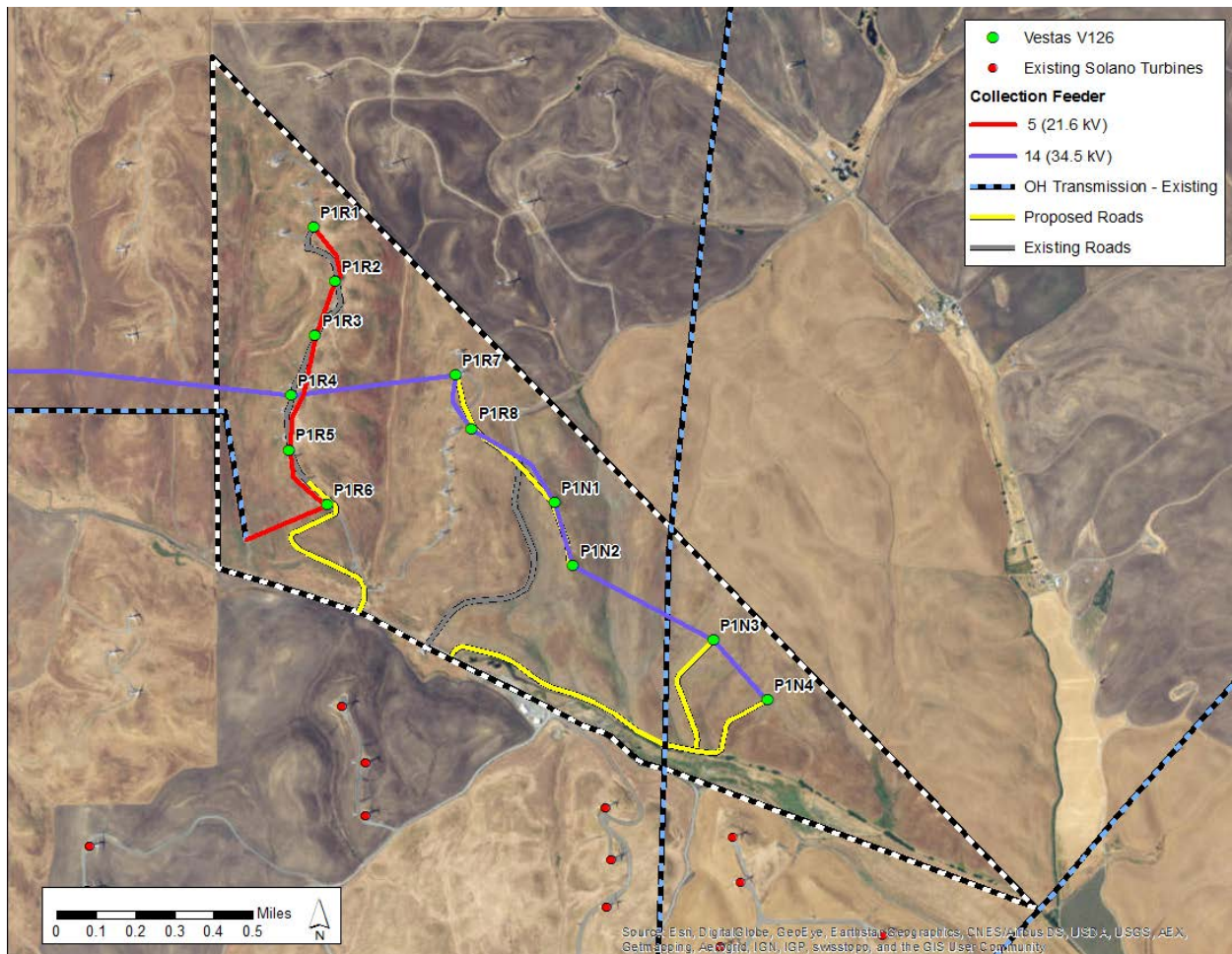


Figure 5-1 Vestas V126-3.45 Phase 1 (Option 1) Road and Collection Routing

5.2.2 Phase 1, Option 2

Option 2 requires that the existing 21.5kV collection system be abandoned and 2 new collection circuits with 6 turbines per circuit be installed with connection to Russell 3 substation. A map of the option is provided below.

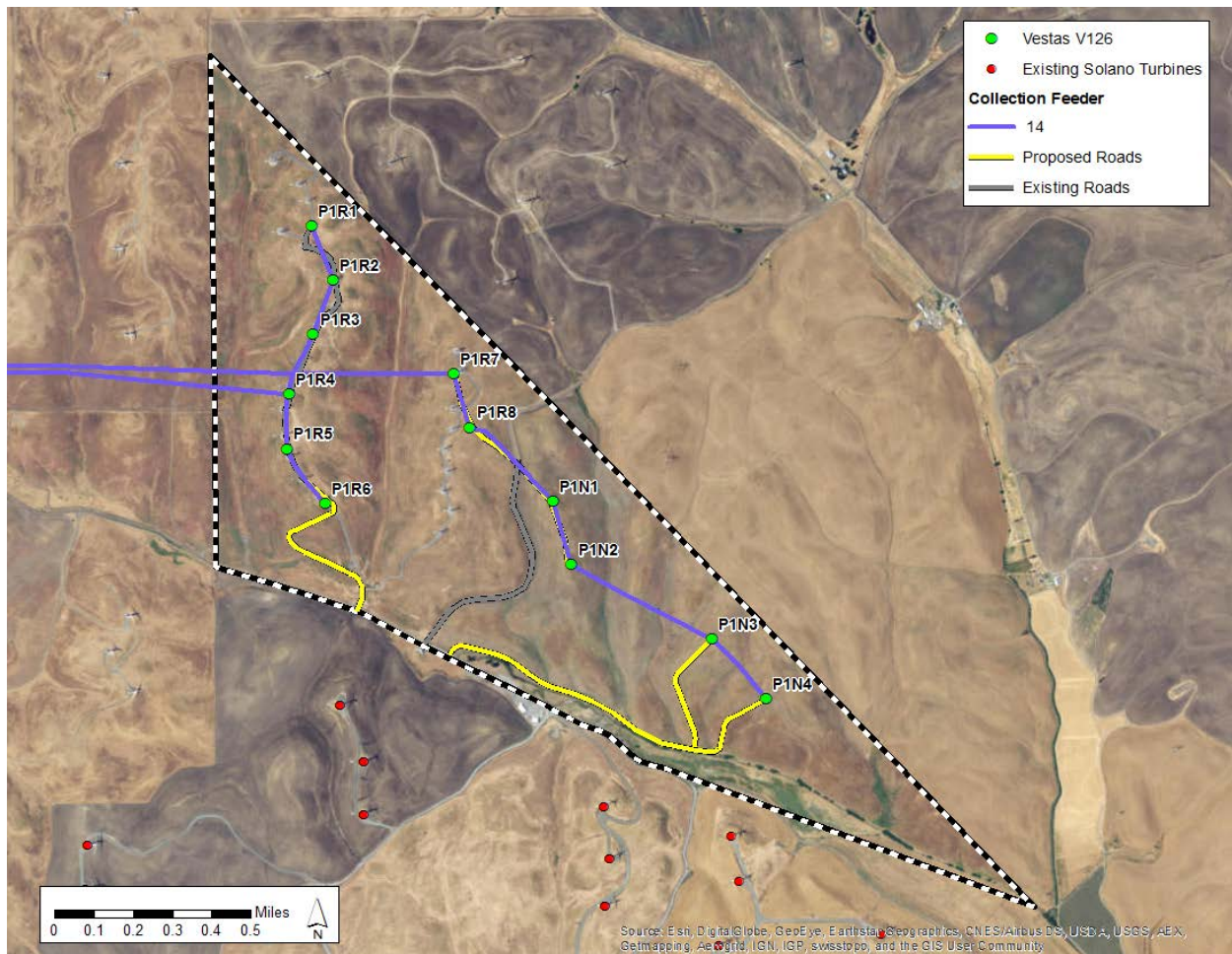


Figure 5-2 Vestas V126-3.45 Phase 1 (Option 2) Road and Collection Routing

5.2.3 Phase 4

Black & Veatch recommends installation of 2 new 34.5kV underground circuits with 4 turbines per circuit to Russell 3 substation for Phase 4. A map of the recommendation is provided below.

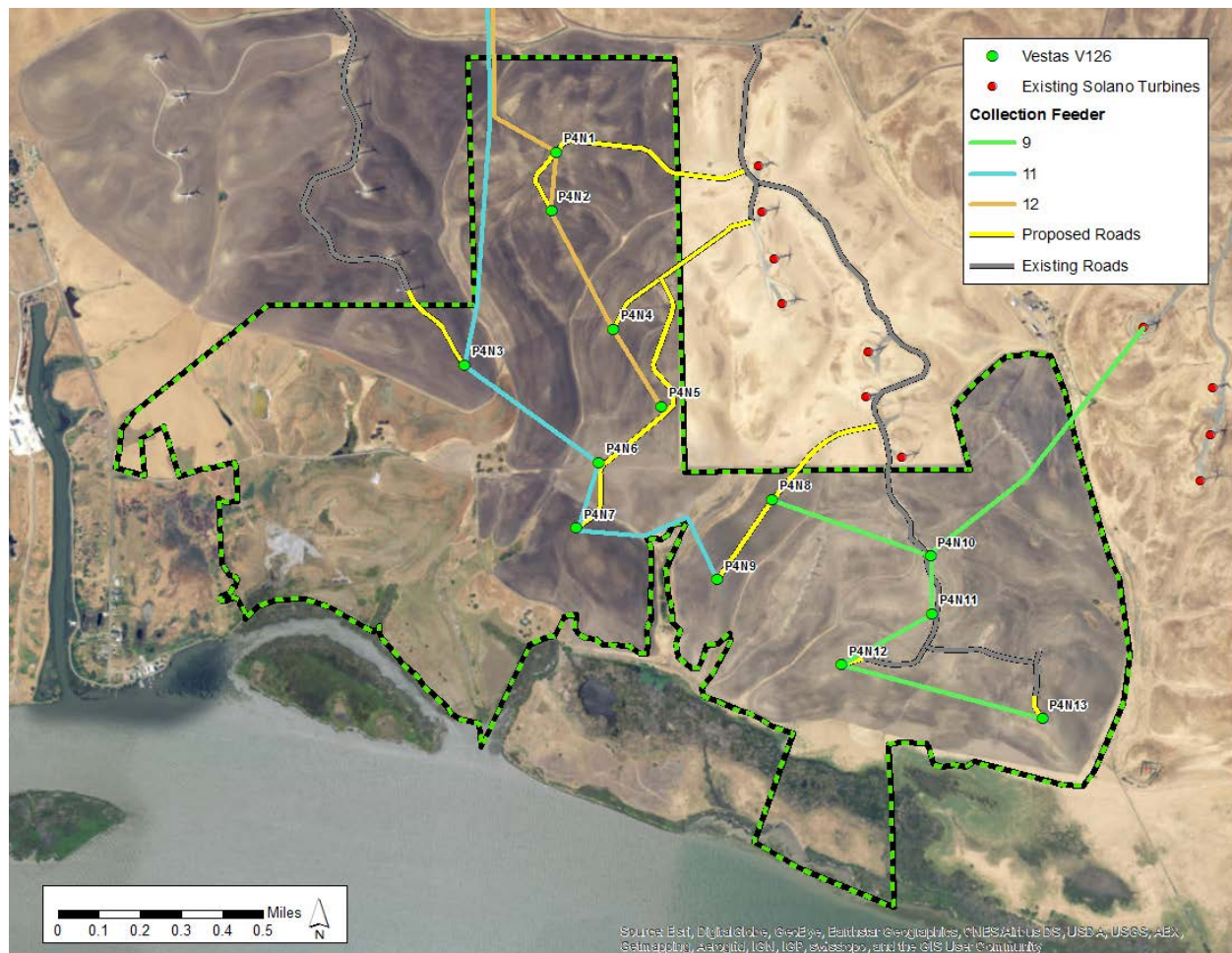


Figure 5-3 Vestas V126-3.45 Phase 4 Road and Collection Routing

Table 5-1 and Table 5-2, in section 5.4, show the electrical capabilities of these potential collection system options.

5.3 COLLECTION SYSTEM – FINAL ASSESSMENT

The addition of the Vestas V136-4.20 and V150-4.20 model options to the selected turbines group for Revision 2 warranted revised collection system assessment for each turbine model. Recommendations for each of the two additional turbine models and for each phase of implementation are detailed below in sections 5.3.1 and 5.3.2

5.3.1 Vestas V136 – 4.20

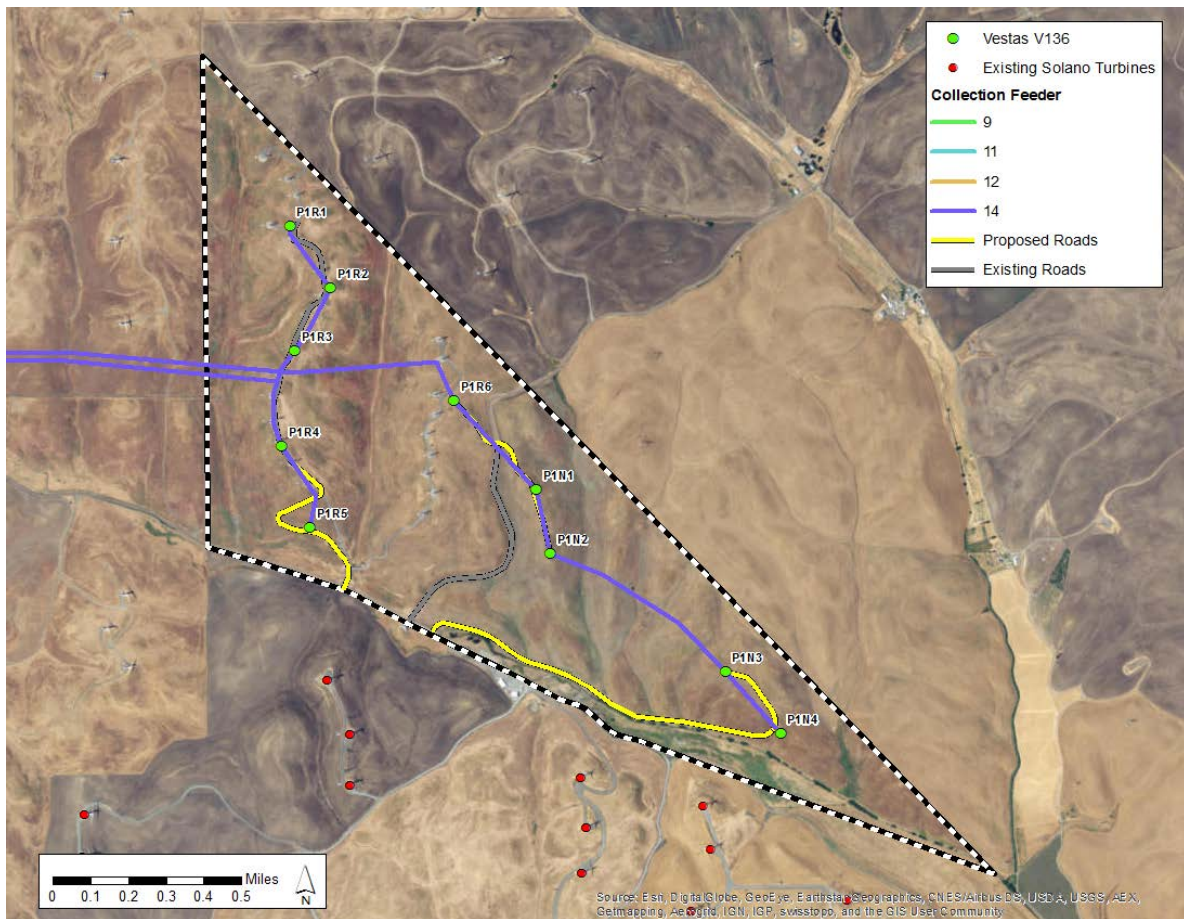


Figure 5-4 Vestas V136-4.20 Phase 1 Road and Collection Routing

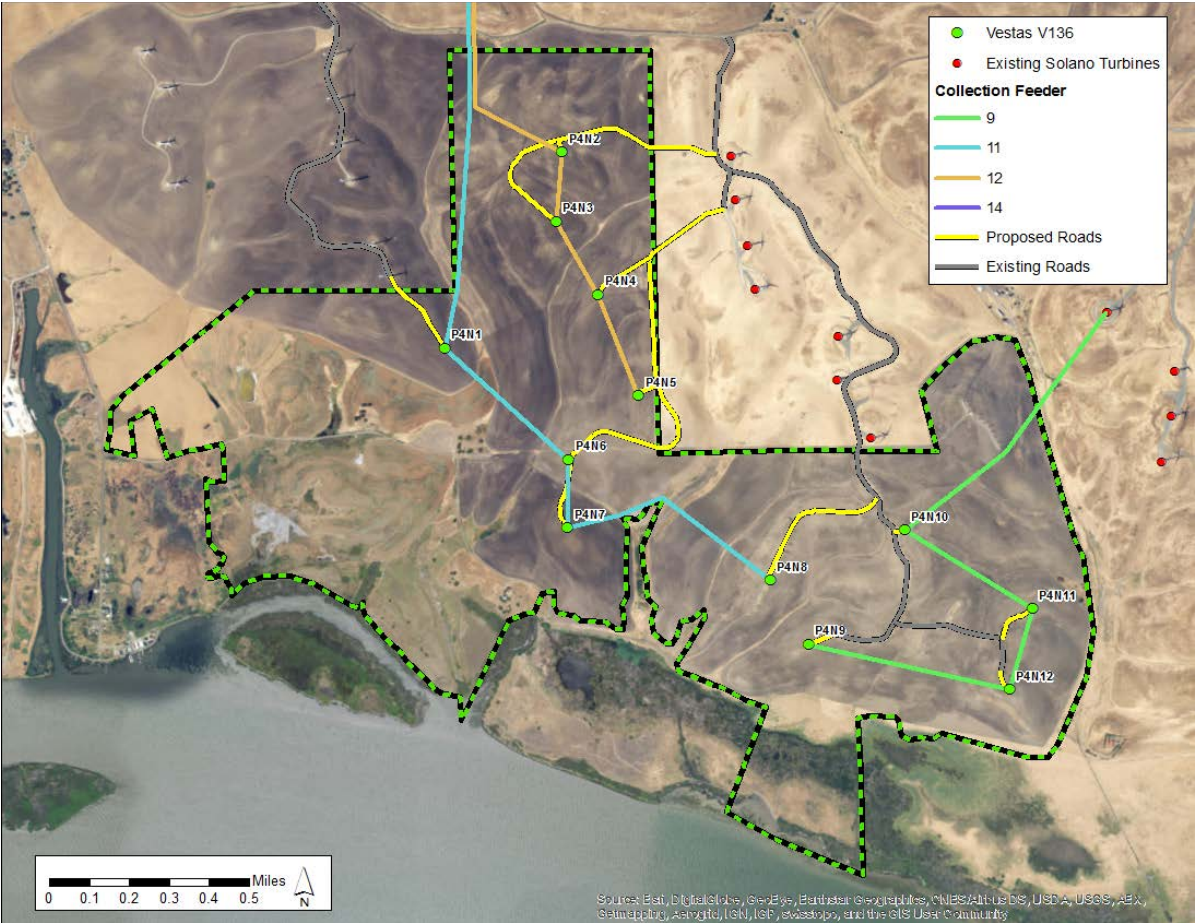


Figure 5-5 Vestas V136-4.20 Phase 4 Road and Collection Routing

5.3.2 Vestas V150 – 4.20

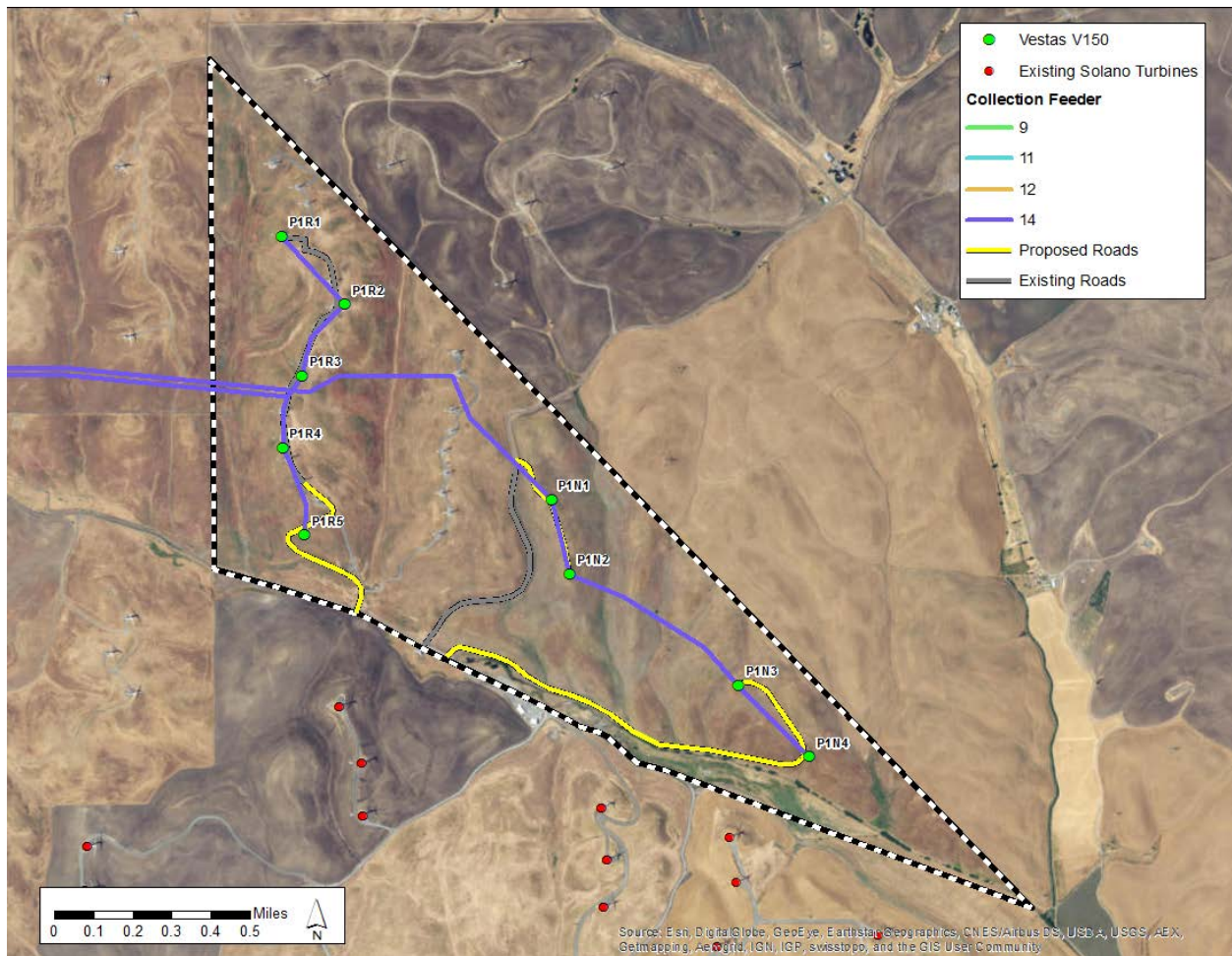


Figure 5-6 Vestas V150-4.20 Phase 1 Road and Collection Routing

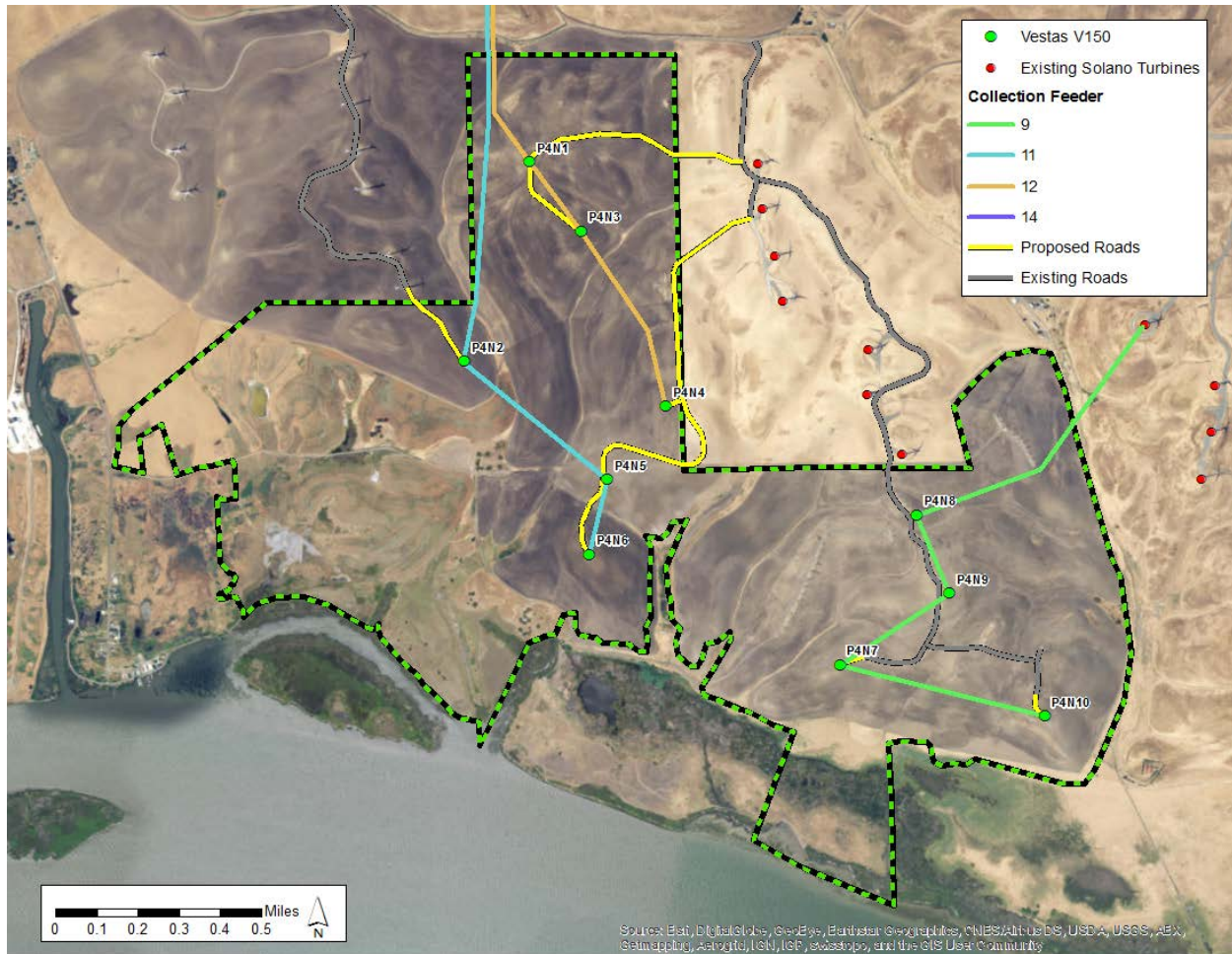


Figure 5-7 Vestas V150-4.20 Phase 4 Road and Collection Routing

Table 5-3 in section 5.4.2 and Table 5-4 in section 5.4.3, show the electrical capabilities of the Vestas V136 and V150 options respectively.

5.4 SUBSTATION

Several factors influenced the collection system conceptual designs including but not limited to substation transformer T2 and T3 ratings and switch ratings. The considerations and results of the three designs are discussed below.

5.4.1 Vestas V126-3.45 Design

The results of Table 5-1 show that transformer T2 shall be sufficient to support a net generation of approximately 104 MW while transformer T3 shall support approximately 197 MW allowing capacity for additional generation. Alternatively, the results of Table 5-2 show that transformer T2 shall support approximately 87 MW allowing capacity for additional generation while transformer T3 shall be sufficient to support a net generation of approximately 214 MW from Phase 1 and Phase 4. Further studies such as reactive power and collection system losses should be

considered during detailed design to more accurately determine the electrical properties of the collection system.

In order to accommodate the collection system options outlined above, minor work will need to be completed at Russell 3 Substation. No additional work is required at Russell Substation for all options. For Phase 1 Repower (Option 1) and Phase 4 Addition, new disconnect switches will need to be installed on the existing riser structure at Feeders 11B and 12B for a total of 6 hook-stick disconnects switches. For Phase 1 Repower (Option 2) and Phase 4 Addition, a new disconnect switch will need to be installed on the existing riser structure at Feeders 11B and 12B as well as an additional disconnect switch at Feeder 14B for a total of 9 hook-stick disconnect switches. Option 2 is the presumed option of choice for the remainder of this Report. Refer to Appendix F Collection System and Substations One Line Diagram for further details.

Table 5-1 Vestas V126-3.45 Phase 1 Repower (Option 1) and Phase 4 Addition

SUBSTATION	TRANSFORMER	VOLTAGE (KV)	PHASE	FEEDER	WTG QTY.	WTG MW	ADDITIONAL MW	TOTAL MW
Russell	T2	21.6	1	5	23	0.66	-15.18	104.3
			1	5A	5	3.45	17.25	
Russell 3	T3	34.5	1	14	7	3.45	24.15	196.8
			4	9B	5	3.45	17.25	
			4	11B	4	3.45	13.8	
			4	12B	4	3.45	13.8	

Table 5-2 Vestas V126-3.45 Phase 1 Repower (Option 2) and Phase 4 Addition

SUBSTATION	TRANSFORMER	VOLTAGE (KV)	PHASE	FEEDER	WTGS QTY.	WTG MW	ADDITIONAL MW	TOTAL MW
Russell	T2	21.6	1	5	23	0.66	-15.18	87.0
Russell 3	T3	34.5	1	14A	6	3.45	20.7	214.1
			1	14B	6	3.45	20.7	
			4	9B	5	3.45	17.25	
			4	11B	4	3.45	13.8	
			4	12B	4	3.45	13.8	

5.4.2 Vestas V136-4.20 Design

The results in Table 5-3 show that transformer T2 will have a loading of only 87 MW after removing the existing 660 kW WTG's, leaving additional capacity for future use. T3 will likely have enough capacity to support additional generation from 22 Vestas V136-4.20 WTG's. The net loading on T3 would be approximately 220 MW. Further studies such as reactive power and collection system losses should be considered during detailed design to more accurately determine the electrical properties of the collection system.

In order to accommodate the collection system options outlined above minor work will need to be completed at Russell 3 Substation. No additional work is required at Russell Substation. New disconnect switches will need to be installed on the existing riser structure at Feeders 11B, 12B, and 14B for a total of 9 hook-stick disconnects switches. Refer to Appendix F for further details.

Table 5-3 Vestas V136-4.20 Phase 1 Repower and Phase 4 Addition

SUBSTATION	TRANSFORMER	VOLTAGE (KV)	PHASE	FEEDER	WTGS QTY.	WTG MW	ADDITIONAL MW	TOTAL MW
Russell	T2	21.6	1	5	23	0.66	-15.18	87.0
Russell 3	T3	34.5	4	9B	4	4.20	16.8	220.2
			4	11B	4	4.20	16.8	
			4	12B	4	4.20	16.8	
			1	14A	5	4.20	21	
			1	14B	5	4.20	21	

5.4.3 Vestas V150-4.20 Design

The results in Table 5-4 show that transformer T2 will have a loading of only 87 MW after removing the existing 660 kW WTG's, leaving additional capacity for future use. T3 should have enough capacity to support additional generation from 19 Vestas V136-4.20 WTG's. The net loading on T3 would be approximately 208 MW. Further studies such as reactive power and collection system losses should be considered during detailed design to more accurately determine the electrical properties of the collection system.

In order to accommodate the collection system options outlined above minor work will need to be completed at Russell 3 Substation. No additional work is required at Russell Substation. New disconnect switches will need to be installed on the existing riser structure at Feeders 11B, 12B, and 14B for a total of 9 hook-stick disconnects switches. Refer to Appendix F for further details.

Table 5-4 Vestas V150-4.20 Phase 1 Repower and Phase 4 Addition

SUBSTATION	TRANSFORMER	VOLTAGE (KV)	PHASE	FEEDER	WTGS QTY.	WTG MW	ADDITIONAL MW	TOTAL MW
Russell	T2	21.6	1	5	23	0.66	-15.18	87.0
Russell 3	T3	34.5	4	9B	4	4.20	16.8	207.6
			4	11B	3	4.20	12.6	
			4	12B	3	4.20	12.6	
			1	14A	4	4.20	16.8	
			1	14B	5	4.20	21	

6.0 Capital and O&M Costs

Black & Veatch has estimated the capital cost required for Phase 1 decommissioning and construction of Phases 1 and 4 for each of the three turbine models selected. The high-level cost estimates include the following items:

- Phase 1 Decommissioning
- Civil and Structural Works
- Electrical Works
- Project Indirects
- Substation Upgrades

The baseline cost estimates are assumed to be for the Northern California region, with a strong union work force and high labor rates. Turbines are not included in the cost estimates, nor are owner's costs such as permitting, legal fees, owner's engineering, and various other internal expenses. Additional assumptions include:

- A permanent met tower is not required
- No existing laydown/storage facilities are available
- A Patrick & Henderson foundation will be used
- Upgrades including road and curve widening and resurfacing will be required for existing access roads used for Phase 1 & Phase 4
- Each collection circuit is conservatively assumed to consist of 50% 1250 kcmil, 25% 750 kcmil, and 25% 4/0 cables
- Decommissioned Vestas V47 turbines will have no resale value, only salvage value
- Phase 1 decommissioning and Phase 1 and Phase 4 construction will be concurrent, so that single mobilization and demobilization is required

Appendix B provides itemized cost estimates for Phase 1 decommissioning, expansion balance of plant costs, and expansion substation and interconnection costs for each selected turbine model. These cost estimates are high level, with an accuracy of approximately +/- 30 percent. Accuracy estimations are further detailed in Appendix C. The summations of the estimated costs for option 1 of Phase 1 and Phase 4, for each selected turbine model, are provided by Table 6-1 below.

Table 6-1 Estimated Costs of Implementation for Selected Turbine Models

Category	Total Cost		
	V126-3.45	V136-4.20	V150-4.20
Phase 1 Decommissioning	\$1,219,000	\$1,219,000	\$1,219,000
Substation and Interconnection	\$45,000	\$45,000	\$45,000
BOP	\$23,371,833	\$23,783,437	\$22,930,798
Wind Turbines - NOT INCLUDED	\$0	\$0	\$0
Total Project	\$24,635,833	\$25,047,437	\$24,194,798

6.1 COST ESTIMATION OF OPERATIONS AND MAINTENANCE (O&M)

Black & Veatch also prepared an operating cost estimate for the expansion. Black & Veatch assumed that turbine (WTG) and balance of plant (BOP) O&M services would be covered by a similar contract with Vestas as is currently used for Solano Wind 3. SMUD provided Black & Veatch with summary level details of the current Solano Wind 3 contract. The interpretation of that contract's scope is that it is limited to WTG scheduled & unscheduled maintenance for 15 years, plus BOP service.

The estimate provided below is based on the assumption of similar full scope O&M (excluding BOP) for Phase 1 and Phase 4 using Vestas V126-3.45 turbines. Typical service costs are estimated on a per-machine basis based on known industry average costs, but escalation and BOP service fees incorporate the existing Solano 3 O&M contract information as well. The resulting baseline values are shown in Table 6-2 below.

Table 6-2 Estimated Components Contributing to Annual Operating Cost

Parameter	Value	Unit
10 YEAR SERVICE & MAINTENANCE CONTRACT (WTG Vendor FOR 25 UNITS)		
Years 1-5	\$60,000	wtg/year
Years 6-10	\$110,000	wtg/year
* BOP maintenance included		
** Estimate excludes certain SMUD internal costs such as utilities, insurance, and environmental monitoring		

From the above values, Black & Veatch compiled a 10 year running estimate of annual operating costs. This estimate is shown below in Table 6-3.

Table 6-3 Projected Annual Operating Cost of Expansion (Years 1 - 10)

Year	Total Cost	\$/MW-yr
1	\$1,500,000	\$17,390
2	\$1,530,000	\$17,740
3	\$1,561,000	\$18,100
4	\$1,592,000	\$18,460
5	\$1,624,000	\$18,830
6	\$2,750,000	\$31,880
7	\$2,805,000	\$32,520
8	\$2,861,000	\$33,170
9	\$2,918,000	\$33,830
10	\$2,977,000	\$34,520
Total	\$22,118,000	\$25,650

Black & Veatch considers the values presented above for the Vestas V126-3.45 in Table 6-2 and Table 6-3 to be the most costly of all turbine models considered as part of Revision 2. Although

O&M costs were not estimated for Vestas V136-4.20 and V150-4.20 turbine layouts, the reduction in turbine quantities relative to those of the V126-3.45 turbine layouts could reasonably be assumed to reduce the O&M costs presented herein.

7.0 Study Recommendation for Vertical Wind Profile

In an effort to better understand the effects of terrain complexity on the vertical wind patterns across the project site, SMUD requested that Black & Veatch assist with designing a study. The objective of this study is to characterize the effect of local terrain on the resulting measurements recorded. This information is of significance to SMUD because it will inform turbine siting tendencies with respect to this region of Solano County in the future as well as reduce uncertainty with respect to extrapolation of MET wind speeds to turbine hub heights.

7.1 RECOMMENDED TECHNOLOGY AND SETUP

This study was conceived with the assumption that a single measurement device will be utilized and moved every three months. It would be ideal for all measurements to be recorded during summer months (April – September); given that analysis shows that these will be the most energetic months. Black & Veatch recommends that measurements are taken through remote sensing technology for the purposes of this campaign. This may be accomplished either using LiDAR technology or SoDAR technology. Both LiDAR and SoDAR technology will allow for this along with dynamic flexibility in selecting measurement heights. Black & Veatch recommends that measurements are recorded across the final turbine selection's rotor at heights of (hub height - blade length), (hub height - blade length/2), hub height, (hub height + blade length/2), and (hub height + blade length).

7.2 RECOMMENDED LOCATIONS AND DURATION

Black & Veatch's review of modelled wind flows across the site indicated that the grade and orientation of terrain features will impact realized wind shear effects. Black & Veatch recommends that SMUD attempt to assess six total locations over a two year period. These locations are provided in Table 7-1 below. Mapped study locations are provided in Appendix D.

Table 7-1 Recommended Locations for Study of Vertical Wind Speed Profiles

Location Number	Longitude	Latitude
1	-121.830674	38.090738
2	-121.822121	38.079207
3	-121.812810	38.078961
4	-121.774548	38.127130
5	-121.766950	38.124418
6	-121.755712	38.116431

It is Black & Veatch's opinion that the sites provided above will adequately provide coverage of both project sites while also accounting for some of the complexity of ridgeline orientation. Review of Phase 1 terrain shows ridges featuring proposed turbines running predominately north and south. Phase 4 feature ridgelines of varying orientations and currently has proposed turbine locations on both ridges running north-south and east-west.

Appendix A. Coordinates of Selected Turbine Options

Appendix A1. Vestas V126-3.45

Table A-1 Vestas V126-3.45 Phase 1 Repower Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1R1	V126-3.45	87 m	4221170	607441	38.131956	-121.774082	59.51
P1R2	V126-3.45	87 m	4220950	607532	38.129958	-121.773083	58.21
P1R3	V126-3.45	87 m	4220720	607449	38.127963	-121.774063	58.27
P1R4	V126-3.45	87 m	4220480	607351	38.125749	-121.775218	63.24
P1R5	V126-3.45	87 m	4220250	607341	38.123728	-121.775360	57.13
P1R6	V126-3.45	87 m	4220030	607499	38.121684	-121.773595	54.89
P1R7	V126-3.45	87 m	4220560	608028	38.126416	-121.767485	59.33
P1R8	V126-3.45	87 m	4220340	608094	38.124420	-121.766765	61.84

Table A-2 Vestas V126-3.45 Phase 1 Addition Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1N1	V126-3.45	87 m	4220040	608434	38.121653	-121.762923	51.47
P1N2	V126-3.45	87 m	4219770	608510	38.119295	-121.762095	48.09
P1N3	V126-3.45	87 m	4219470	609087	38.116481	-121.755562	42.92
P1N4	V126-3.45	87 m	4219220	609309	38.114234	-121.753072	26.53

Table A-3 Vestas V126-3.45 Phase 4 Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P4N1	V126-3.45	87 m	4216787	602585	38.093061	-121.830113	71.07
P4N2	V126-3.45	87 m	4216558	602565	38.091008	-121.830374	71.03
P4N3	V126-3.45	87 m	4215954	602226	38.085599	-121.834327	52.33
P4N4	V126-3.45	87 m	4216093	602810	38.086789	-121.827645	61.84
P4N5	V126-3.45	87 m	4215792	602998	38.084056	-121.825549	63.35
P4N6	V126-3.45	87 m	4215572	602751	38.082093	-121.828387	33.55
P4N7	V126-3.45	87 m	4215317	602664	38.079807	-121.829418	28.03
P4N8	V126-3.45	87 m	4215429	603431	38.080728	-121.820661	60.11
P4N9	V126-3.45	87 m	4215114	603217	38.077916	-121.823148	31.42
P4N10	V126-3.45	87 m	4215206	604053	38.078647	-121.813600	62.33
P4N11	V126-3.45	87 m	4214981	604058	38.076624	-121.813574	55.88
P4N12	V126-3.45	87 m	4214780	603705	38.074852	-121.817634	55.24
P4N13	V126-3.45	87 m	4214571	604491	38.072876	-121.808706	45.19

Appendix A2. Vestas V136-4.20

Table A-4 Vestas V136-4.20 Phase 1 Repower Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1R1	V136-4.20	82 m	4221140	607399	38.131740	-121.774565	62.63
P1R2	V136-4.20	82 m	4220880	607573	38.129339	-121.772626	56.84
P1R3	V136-4.20	82 m	4220610	607422	38.126931	-121.774385	57.76
P1R4	V136-4.20	82 m	4220200	607363	38.123272	-121.775114	59.57
P1R5	V136-4.20	82 m	4219850	607483	38.120118	-121.773797	31.94
P1R6	V136-4.20	82 m	4220390	608101	38.124925	-121.766670	60.15

Table A-5 Vestas V136-4.20 Phase 1 Addition Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1N1	V136-4.20	82 m	4220010	608452	38.121453	-121.762721	50.48
P1N2	V136-4.20	82 m	4219740	608514	38.118993	-121.762061	47.41
P1N3	V136-4.20	82 m	4219240	609264	38.114350	-121.753589	27.77
P1N4	V136-4.20	82 m	4218970	609499	38.111947	-121.750938	13.94

Table A-6 Vestas V136-4.20 Phase 4 Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P4N1	V136-4.20	82 m	4215960	602221	38.085641	-121.834375	52.64
P4N2	V136-4.20	82 m	4216750	602695	38.092688	-121.828856	70.47
P4N3	V136-4.20	82 m	4216470	602670	38.090181	-121.829187	65.52
P4N4	V136-4.20	82 m	4216170	602840	38.087507	-121.827289	59.38
P4N5	V136-4.20	82 m	4215770	603002	38.083826	-121.825503	62.02
P4N6	V136-4.20	82 m	4215510	602720	38.081526	-121.828756	31.10
P4N7	V136-4.20	82 m	4215230	602716	38.079048	-121.828842	38.16
P4N8	V136-4.20	82 m	4215020	603532	38.077053	-121.819569	58.22
P4N9	V136-4.20	82 m	4214760	603686	38.074714	-121.817854	53.76
P4N10	V136-4.20	82 m	4215230	604076	38.078825	-121.813340	61.29
P4N11	V136-4.20	82 m	4214910	604588	38.075915	-121.807550	48.35
P4N12	V136-4.20	82 m	4214580	604499	38.072979	-121.808606	44.82

Appendix A3. Vestas V150-4.20

Table A-7 Vestas V150-4.20 Phase 1 Repower Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1R1	V150-4.20	105 m	4221140	607325	38.131710	-121.775408	61.51
P1R2	V150-4.20	105 m	4220860	607586	38.129139	-121.772471	54.92
P1R3	V150-4.20	105 m	4220560	607410	38.126525	-121.774525	56.86
P1R4	V150-4.20	105 m	4220260	607327	38.123845	-121.775516	55.36
P1R5	V150-4.20	105 m	4219900	607418	38.120594	-121.774541	35.25

Table A-8 Vestas V150-4.20 Phase 1 Addition Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P1N1	V150-4.20	105 m	4220050	608436	38.121802	-121.762906	48.67
P1N2	V150-4.20	105 m	4219750	608513	38.119030	-121.762066	47.59
P1N3	V150-4.20	105 m	4219290	609207	38.114823	-121.754220	34.07
P1N4	V150-4.20	105 m	4218990	609499	38.112136	-121.750943	14.81

Table A-9 Vestas V150-4.20 Phase 4 Turbine Coordinates

WTG #	Model	Height	Northing	Easting	Latitude	Longitude	Elev (m)
P4N1	V150-4.20	105 m	4216740	602484	38.092646	-121.831268	73.51
P4N2	V150-4.20	105 m	4215960	602226	38.085651	-121.834317	52.70
P4N3	V150-4.20	105 m	4216470	602685	38.090189	-121.829013	63.36
P4N4	V150-4.20	105 m	4215780	603013	38.083970	-121.825369	30.78
P4N5	V150-4.20	105 m	4215500	602787	38.081430	-121.827991	64.32
P4N6	V150-4.20	105 m	4215200	602717	38.078793	-121.828832	64.86
P4N7	V150-4.20	105 m	4214770	603695	38.074802	-121.817743	54.80
P4N8	V150-4.20	105 m	4215360	603997	38.080033	-121.814218	44.85
P4N9	V150-4.20	105 m	4215050	604122	38.077278	-121.812832	35.24
P4N10	V150-4.20	105 m	4214570	604499	38.072901	-121.808609	65.06

Appendix B. Cost Estimate Details

Appendix B1. Vestas V126-3.45

Table B-2 Vestas V126-3.45 Estimation of Phase 1 Decommissioning Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
DECOMMISSIONING PHASE 1				
Turbines	\$1,610,000	\$70,000	WTG	23
Foundations	\$207,000	\$9,000	WTG	23
Roads and crane pads	\$161,000	\$7,000	WTG	23
Electrical	\$138,000	\$6,000	WTG	23
Mobilization/ Indirects	\$0	\$0	Project	0
Salvage Value (no resale)	(\$897,000)	\$40,000	WTG	23
Total Decommissioning	\$1,219,000			

Table B-3 Vestas V126-3.45 Estimation of Substation and Interconnection Costs

Category	Total Cost	Base Cost	Per	Quantity
SUBSTATION AND INTERCONNECTION				
Phase 1 - Option 2				
Feeder 14 - 1200A Switch	\$15,000	\$15,000	Each	1
Phase 4				
Feeder 11 - 1200A Switch	\$15,000	\$15,000	Each	1
Feeder 12 - 1200A Switch	\$15,000	\$15,000	Each	1
Total Substation/Interconnection	\$45,000			

Table B-4 Vestas V126-3.45 Estimation of Balance of Plant Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
Balance of Plant - Phase 1				
Civil & Structural Works				
Access Roads - New	\$875,991	\$67	LF	13,055
Access Roads - Improvements	\$102,480	\$24	LF	4,200
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$541,680	\$45,140	WTG	12
Crane Pads	\$181,536	\$15,128	WTG	12
WTG Foundations	\$2,100,000	\$175,000	WTG	12
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$1,683,600	\$140,300	WTG	12
Met Tower	\$0	\$0	Project	0
Electrical Works – Option 2				
Cable, junction box, ground, etc.	\$2,504,205	\$55	LF	45,351
Misc. Cable, Connectors, Etc.	\$45,000	\$45,000	LS	1
Testing & Commissioning	\$145,991	\$145,991	LS	1
Balance of Plant - Phase 4				
Civil & Structural Works				
Access Roads - New	\$973,621	\$67	LF	14,510
Access Roads - Improvements	\$446,520	\$24	LF	18,300
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$586,820	\$45,140	WTG	13
Crane Pads	\$196,664	\$15,128	WTG	13
WTG Foundations	\$2,275,000	\$175,000	WTG	13
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$1,823,900	\$140,300	WTG	13
Met Tower	\$0	\$0	Project	0
Electrical Works				
Cable, junction box, ground, etc.	\$2,481,545	\$55	LF	45,119
Testing & Commissioning	\$172,428	\$162,428	LS	1
Project Indirects				
Misc. Construction Indirects				
Temp. Construction Facilities	\$732,000	\$732,000	Project	1
Site Mob/Demobilization	\$630,852	\$630,852	Project	1
Project Indirects				
BOP Engineering & Studies	\$1,200,000	\$1,200,000	Project	1
Construction Management	\$2,440,000	\$2,440,000	Project	1
Primary Laydown Area	\$732,000	\$732,000	Project	1
Total Balance of Plant	\$23,371,833			

Appendix B2. Vestas V136-4.20

Table B-5 Vestas V136-4.20 Estimation of Phase 1 Decommissioning Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
DECOMMISSIONING PHASE 1				
Turbines	\$1,610,000	\$70,000	WTG	23
Foundations	\$207,000	\$9,000	WTG	23
Roads and crane pads	\$161,000	\$7,000	WTG	23
Electrical	\$138,000	\$6,000	WTG	23
Mobilization/ Indirects	\$0	\$0	Project	0
Salvage Value (no resale)	(\$897,000)	\$40,000	WTG	23
Total Decommissioning	\$1,219,000			

Table B-6 Vestas V136-4.20 Estimation of Substation and Interconnection Costs

Category	Total Cost	Base Cost	Per	Quantity
SUBSTATION AND INTERCONNECTION				
Phase 1				
Feeder 14 - 1200A Switch	\$15,000	\$15,000	Each	1
Phase 4				
Feeder 11 - 1200A Switch	\$15,000	\$15,000	Each	1
Feeder 12 - 1200A Switch	\$15,000	\$15,000	Each	1
Total Substation/Interconnection	\$45,000			

Table B-7 Vestas V136-4.20 Estimation of Balance of Plant Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
Balance of Plant - Phase 1				
Civil & Structural Works				
Access Roads - New	\$813,118	\$67	LF	12,118
Access Roads - Improvements	\$122,000	\$24	LF	5,000
Public Road - Improvements Temp.	\$300,000	\$300,000	Project	1
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$400,000	\$40,000	WTG	10
Crane Pads	\$120,000	\$12,000	WTG	10
WTG Foundations	\$1,800,000	\$180,000	WTG	10
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$1,850,000	\$185,000	WTG	10
Met Tower	\$0	\$0	Project	0
Electrical Works				
Cable, junction box, ground, etc.	\$2,585,825	\$55	LF	47,015
Misc. Cable, Connectors, Etc.	\$45,000	\$45,000	LS	1
Testing & Commissioning	\$205,254	\$205,254	LS	1
Balance of Plant - Phase 4				
Civil & Structural Works				
Access Roads - New	\$1,084,202	\$67	LF	16,158
Access Roads - Improvements	\$244,000	\$24	LF	10,000
Public Road Temporary	\$300,000	\$300,000	Project	1
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$480,000	\$40,000	WTG	12
Crane Pads	\$144,000	\$12,000	WTG	12
WTG Foundations	\$2,160,000	\$180,000	WTG	12
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$2,220,000	\$185,000	WTG	12
Met Tower	\$0	\$0	Project	0
Electrical Works				
Cable, junction box, ground, etc.	\$2,501,455	\$55	LF	45,481
Testing & Commissioning	\$173,732	\$163,732	LS	1
Project Indirects				
Misc. Construction Indirects				
Temp. Construction Facilities	\$732,000	\$732,000	Project	1
Site Mob/Demobilization	\$630,852	\$630,852	Project	1
Project Indirects				
BOP Engineering & Studies	\$1,200,000	\$1,200,000	Project	1
Construction Management	\$2,440,000	\$2,440,000	Project	1
Primary Laydown Area	\$732,000	\$732,000	Project	1
Total Balance of Plant	\$23,783,437			

Appendix B3. Vestas V150-4.20

Table B-8 Vestas V150-4.20 Estimation of Phase 1 Decommissioning Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
DECOMMISSIONING PHASE 1				
Turbines	\$1,610,000	\$70,000	WTG	23
Foundations	\$207,000	\$9,000	WTG	23
Roads and crane pads	\$161,000	\$7,000	WTG	23
Electrical	\$138,000	\$6,000	WTG	23
Mobilization/ Indirects	\$0	\$0	Project	0
Salvage Value (no resale)	(\$897,000)	\$40,000	WTG	23
Total Decommissioning	\$1,219,000			

Table B-9 Vestas V150-4.20 Estimation of Substation and Interconnection Costs

Category	Total Cost	Base Cost	Per	Quantity
SUBSTATION AND INTERCONNECTION				
Phase 1				
Feeder 14 - 1200A Switch	\$15,000	\$15,000	Each	1
Phase 4				
Feeder 11 - 1200A Switch	\$15,000	\$15,000	Each	1
Feeder 12 - 1200A Switch	\$15,000	\$15,000	Each	1
Total Substation/Interconnection	\$45,000			

Table B-10 Vestas V150-4.20 Estimation of Balance of Plant Costs

Cost Breakdown	Total Cost	Base Cost	Per	Quantity
Balance of Plant - Phase 1				
Civil & Structural Works				
Access Roads - New	\$763,330	\$67	LF	11,376
Access Roads - Improvements	\$122,000	\$24	LF	5,000
Public Road - Improvements Temp.	\$300,000	\$300,000	Project	1
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$360,000	\$40,000	WTG	9
Crane Pads	\$108,000	\$12,000	WTG	9
WTG Foundations	\$1,755,000	\$195,000	WTG	9
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$1,935,000	\$215,000	WTG	9
Met Tower	\$0	\$0	Project	0
Electrical Works				
Cable, junction box, ground, etc.	\$2,581,645	\$55	LF	46,939
Misc. Cable, Connectors, Etc.	\$45,000	\$45,000	LS	1
Testing & Commissioning	\$204,980	\$204,980	LS	1
Balance of Plant - Phase 4				
Civil & Structural Works				
Access Roads - New	\$848,345	\$67	LF	12,643
Access Roads - Improvements	\$244,000	\$24	LF	10,000
Public Road Temporary	\$300,000	\$300,000	Project	1
Public Road Restoration	\$250,000	\$250,000	Project	1
WTG Site Prep	\$400,000	\$40,000	WTG	10
Crane Pads	\$120,000	\$12,000	WTG	10
WTG Foundations	\$1,950,000	\$195,000	WTG	10
O&M Building	\$0	\$0	Project	0
Wind Turbine Erection	\$2,150,000	\$215,000	WTG	10
Met Tower	\$0	\$0	Project	0
Electrical Works				
Cable, junction box, ground, etc.	\$2,345,145	\$55	LF	42,639
Testing & Commissioning	\$163,500	\$153,500	LS	1
Project Indirects				
Misc. Construction Indirects				
Temp. Construction Facilities	\$732,000	\$732,000	Project	1
Site Mob/Demobilization	\$630,852	\$630,852	Project	1
Project Indirects				
BOP Engineering & Studies	\$1,200,000	\$1,200,000	Project	1
Construction Management	\$2,440,000	\$2,440,000	Project	1
Primary Laydown Area	\$732,000	\$732,000	Project	1
Total Balance of Plant	\$22,930,798			

Appendix C. Accuracy Bands of Cost Estimate

Table C-1 Vestas V126-3.45 Bounding Accuracy of Capital Cost Estimate

ESTIMATE ACCURACY	Accuracy Range (-/+)		Low	Base	High
Decommissioning	-30%	30%	\$853,300	\$1,219,000	\$1,584,700
Project Substation	-30%	30%	\$31,500	\$45,000	\$58,500
Balance of Plant	-30%	30%	\$16,360,283	\$23,371,833	\$30,383,382
TOTAL PROJECT	-34%	23%	\$16,259,650	\$24,635,833	\$30,302,075

Table C-11 Vestas V136-4.20 Bounding Accuracy of Capital Cost Estimate

ESTIMATE ACCURACY	Accuracy Range (-/+)		Low	Base	High
Decommissioning	-30%	30%	\$853,300	\$1,219,000	\$1,584,700
Project Substation	-30%	30%	\$31,500	\$45,000	\$58,500
Balance of Plant	-30%	30%	\$16,648,406	\$23,783,437	\$30,918,469
TOTAL PROJECT	-34%	23%	\$16,679,906	\$25,047,437	\$30,976,969

Table C-3 Vestas V150-4.20 Bounding Accuracy of Capital Cost Estimate

ESTIMATE ACCURACY	Accuracy Range (-/+)		Low	Base	High
Decommissioning	-30%	30%	\$853,300	\$1,219,000	\$1,584,700
Project Substation	-30%	30%	\$31,500	\$45,000	\$58,500
Balance of Plant	-30%	30%	\$16,051,559	\$22,930,798	\$29,810,037
TOTAL PROJECT	-34%	23%	\$16,083,059	24,194,798	\$29,868,537

Appendix D. Recommended Vertical Wind Profile Study Sites

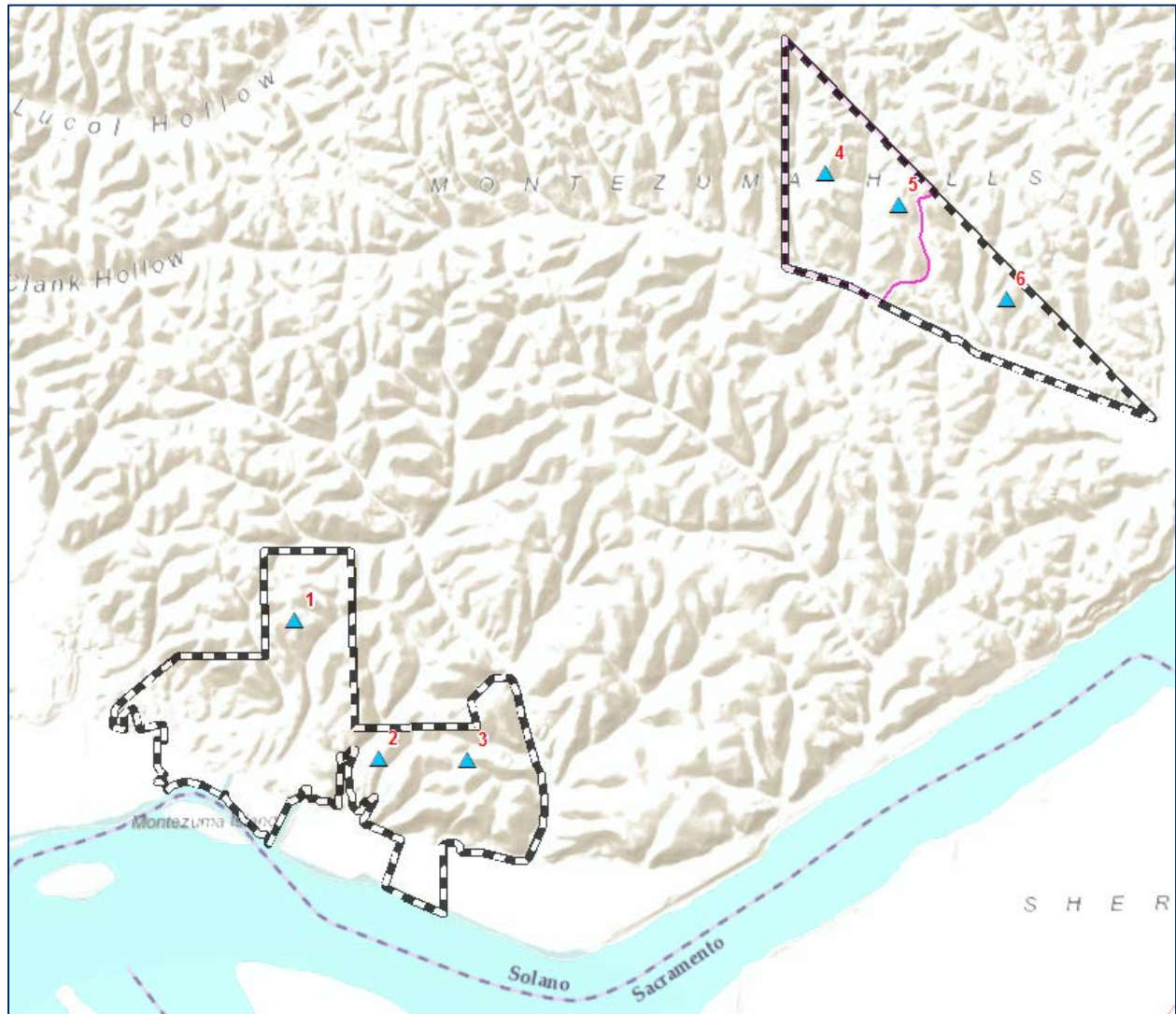


Figure D-1 Recommended Vertical Wind Profile Study Sites

Appendix E. Energy Production Loss Factors

Array Efficiency: This is a calculated value, and part of the output of the wake and energy production model. It represents the ratio of the net to gross energy yield, which only considers calculation of wake losses.

Electrical Efficiency: Losses in the electric collection system and substation prior to the plant's revenue meters are covered by this factor. Points of significant electrical losses in a wind energy project usually include electric collection system lines connecting the turbines to the project substation, the turbine step-up transformers, and the substation's main power transformer.

Turbine Availability: Turbine availability accounts for machine downtime that is either a scheduled or unscheduled outage. This value is typically estimated at 3 to 5 percent. Assumptions for turbine availability are often driven by historical turbine model track record.

Environmental: Wind turbine performance is sensitive to the cleanliness and surface condition of the turbine's blades. The site can contain airborne particulates that may contribute to blade soiling. Blade soiling and blade surface degradation, as well as inclement weather and vegetation growth are considered for this loss.

Balance of Plant (BoP) Maintenance: Substation maintenance requiring the shutdown of the project is assumed to be infrequent, averaging approximately one day out of each year.

Turbine Performance: Turbine performance losses account for sub-optimal performance experienced by turbines, including instrumentation calibration, pitch and yaw errors, and similar sub-optimal operations.

Utility Downtime: Utility downtime accounts for events that require downtime on the part of the utility. These are generally assumed to be infrequent.

Power Curve: The wind turbine manufacturer will warranty a performance level for the turbine at a percentage of the power curve values. Industry experience shows that while wind turbines historically meet power curve warranties when including measurement uncertainty, they often operate slightly under published power curves.

High Wind Hysteresis: When wind speeds exceed the operational range of a wind turbine, the turbine shuts down to protect itself. The turbine then waits to restart until wind speeds fall below a lower restart speed.

Wind Sector Management: Wind sector management is a means of protecting turbines when winds are blowing along the turbine layout direction in which turbines have been given reduced along-wind.

Solano Phase 1 & Phase 4

Westslope SMUD

Solano County, California

Obstruction Evaluation & Airspace Analysis

July 25, 2018



Capitol Airspace Group

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Summary

Capitol Airspace conducted an obstruction evaluation and airspace analysis for the Solano Phase 1 and Phase 4 wind projects in Solano County, California. The purpose for this analysis was to identify obstacle clearance surfaces established by the Federal Aviation Administration (FAA) that could limit increasing wind turbine heights to 493 feet above ground level (AGL) (black points, [Figure 1](#)) and 591 feet AGL (blue points, [Figure 1](#)). This analysis assessed height constraints overlying 19 Phase 1 and 22 Phase 4 wind turbine locations as well as an approximately 30 square mile study area (red outline, [Figure 1](#)) to determine the likelihood of the FAA issuing favorable determinations of no hazard to 493 and 591 foot AGL wind turbines.

14 CFR Part 77.9 requires that that all structures exceeding 200 feet AGL be submitted to the FAA so that an aeronautical study can be conducted. The FAA's objective in conducting aeronautical studies is to ensure that proposed structures do not have an effect on the safety of air navigation and the efficient utilization of navigable airspace by aircraft. The end result of an aeronautical study is the issuance of a determination of 'hazard' or 'no hazard' that can be used by the proponent to obtain necessary local construction permits. It should be noted that the FAA has no control over land use in the United States and cannot enforce the findings of its studies.

Height constraints overlying the Solano Phase 1 and Phase 4 wind projects are a constant 749 feet above mean sea level (AMSL) and are associated with Northern California (NCT) Terminal Radar Approach Control (TRACON) minimum vectoring altitude sectors. Proposed structures that exceed these surfaces would require an increase to minimum vectoring altitudes. If the FAA determines that this impact would affect a significant volume of operations (as few as one per week), it could result in determinations of hazard.

United States Geological Survey (USGS) elevation data indicates that these surfaces could limit 493 foot AGL wind turbines on higher terrain in the northwestern and central sections of the study area. These surfaces could limit 591 foot AGL wind turbines throughout the study area including five Phase 1 wind turbines (*P1R1:4*, *P1N1*) and seven Phase 4 turbines (*P4N1:4*, *P4N7:9*).

This study did not consider electromagnetic interference on communications, navigation, or radar surveillance systems. However, a navigational aid screening surface overlies the northwestern corner of the study area. USGS elevation data indicates that 493 and 591 foot AGL wind turbines proposed in this area will exceed the screening surface. If the FAA determines that the impact on the associated navigational aid would constitute a substantial adverse effect it could result in determinations of hazard regardless of the lack of impact on the other surfaces described in this report.

Capitol Airspace applies FAA defined rules and regulations applicable to obstacle evaluation, instrument procedures assessment and visual flight rules (VFR) operations to the best of its ability and with the intent to provide the most accurate representation of limiting airspace surfaces as possible. Capitol Airspace maintains datasets obtained from the FAA which are updated on a 56 day cycle. The results of this analysis/map are based on the most recent data available as of the date of this report. Limiting airspace surfaces depicted in this report are subject to change due to FAA rule changes and regular procedure amendments. Therefore, it is of the utmost importance to obtain FAA determinations of no hazard prior to making substantial financial investments in this project.



Methodology

Capitol Airspace studied the proposed projects based upon location information provided by Westslope Consulting. Using this information, Capitol Airspace generated graphical overlays to determine proximity to airports (**Figure 1**), published instrument procedures, enroute airways, FAA minimum vectoring altitude and minimum instrument flight rules (IFR) altitude charts, as well as military airspace and training routes.

Capitol Airspace evaluated all 14 CFR Part 77 imaginary surfaces, published instrument approach and departure procedures, visual flight rules operations, FAA minimum vectoring altitudes, minimum IFR altitudes, and enroute operations. All formulas, headings, altitudes, bearings and coordinates used during this study were derived from the following documents and data sources:

- 14 CFR Part 77 Safe, Efficient Use, and Preservation of the Navigable Airspace
- FAA Order 7400.2L Procedures for Handling Airspace Matters
- FAA Order 8260.3D United States Standard for Terminal Instrument Procedures
- FAA Order 8260.58A United States Standard for Performance Based Navigational (PBN) Instrument Procedure Design
- United States Government Flight Information Publication, US Terminal Procedures
- National Airspace System Resource Aeronautical Data

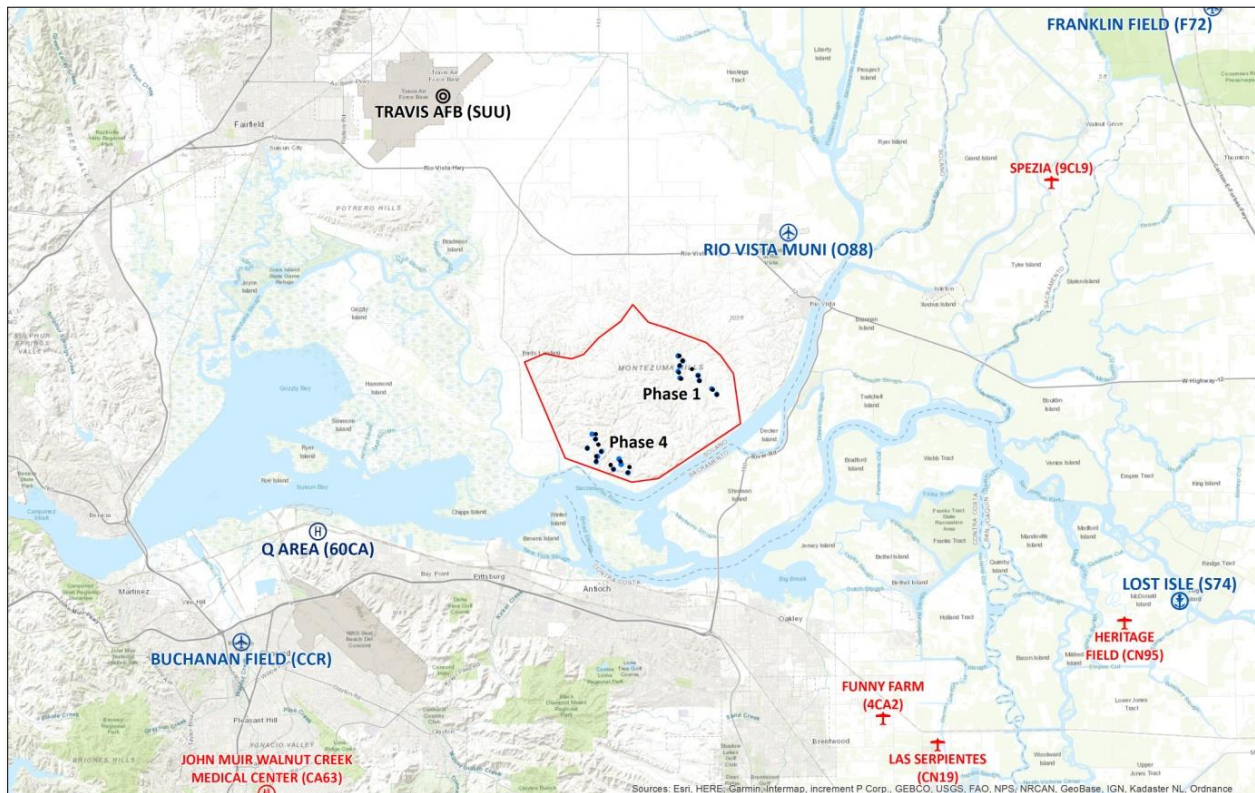


Figure 1: Public-use (blue), private-use (red), and military (navy blue and black) airports and heliports in proximity to the Solano Phase 1 and Phase 4 wind projects



Study Findings

14 CFR Part 77 Imaginary Surfaces

The FAA uses level and sloping imaginary surfaces to determine if a proposed structure is an obstruction to air navigation. Structures that are identified as obstructions are then subject to a full aeronautical study and increased scrutiny. However, exceeding a Part 77 imaginary surface does not automatically result in the issuance of a determination of hazard. Proposed structures must have airspace impacts that constitute a substantial adverse effect in order to warrant the issuance of determinations of hazard.

14 CFR Part 77 imaginary surfaces (**Figure 2**) overlying the Solano Phase 1 and Phase 4 wind projects:

Rio Vista Municipal (O88)

77.17(a)(2): 378 to 785 feet AMSL

At 493 feet AGL (orange area, **Figure 2**) and 591 feet AGL (orange and yellow areas, **Figure 2**), wind turbines in the northeastern section of the study area, including all of the Phase 1 wind turbines, will exceed the Rio Vista Municipal Airport (O88) 77.17(a)(2) imaginary surface and will be identified as obstructions. Additionally, at 591 feet AGL, proposed wind turbines will exceed 77.17(a)(1) – a height of 499 feet AGL at the site of the object – and will be identified as obstructions regardless of location.

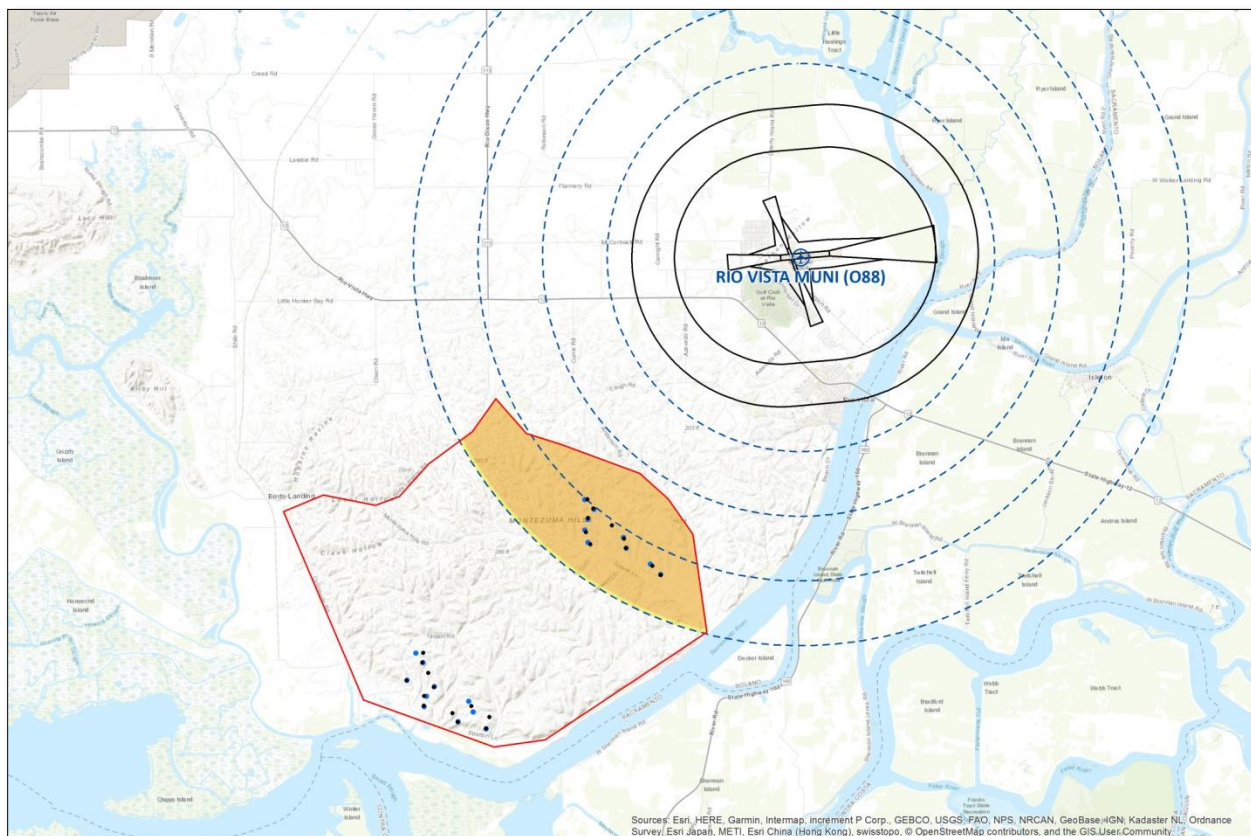


Figure 2: 77.17(a)(2) (dashed blue) and 77.19 (black) imaginary surfaces in proximity to the Solano Phase 1 and Phase 4 wind projects



Visual Flight Rules (VFR) Traffic Pattern Airspace

VFR traffic pattern airspace is used by pilots operating during visual meteorological conditions. The airspace dimensions are based upon the category of aircraft which, in turn, is based upon the approach speed of the aircraft. 14 CFR Part 77.17(a)(2) and 77.19 (as applied to a *visual* runway) imaginary surfaces establish the obstacle clearance surface heights within VFR traffic pattern airspace.

VFR traffic pattern airspace does not overlie the Solano Phase 1 and Phase 4 wind projects and should not limit 493 or 591 foot AGL wind turbines within the defined study area ([Figure 3](#)).

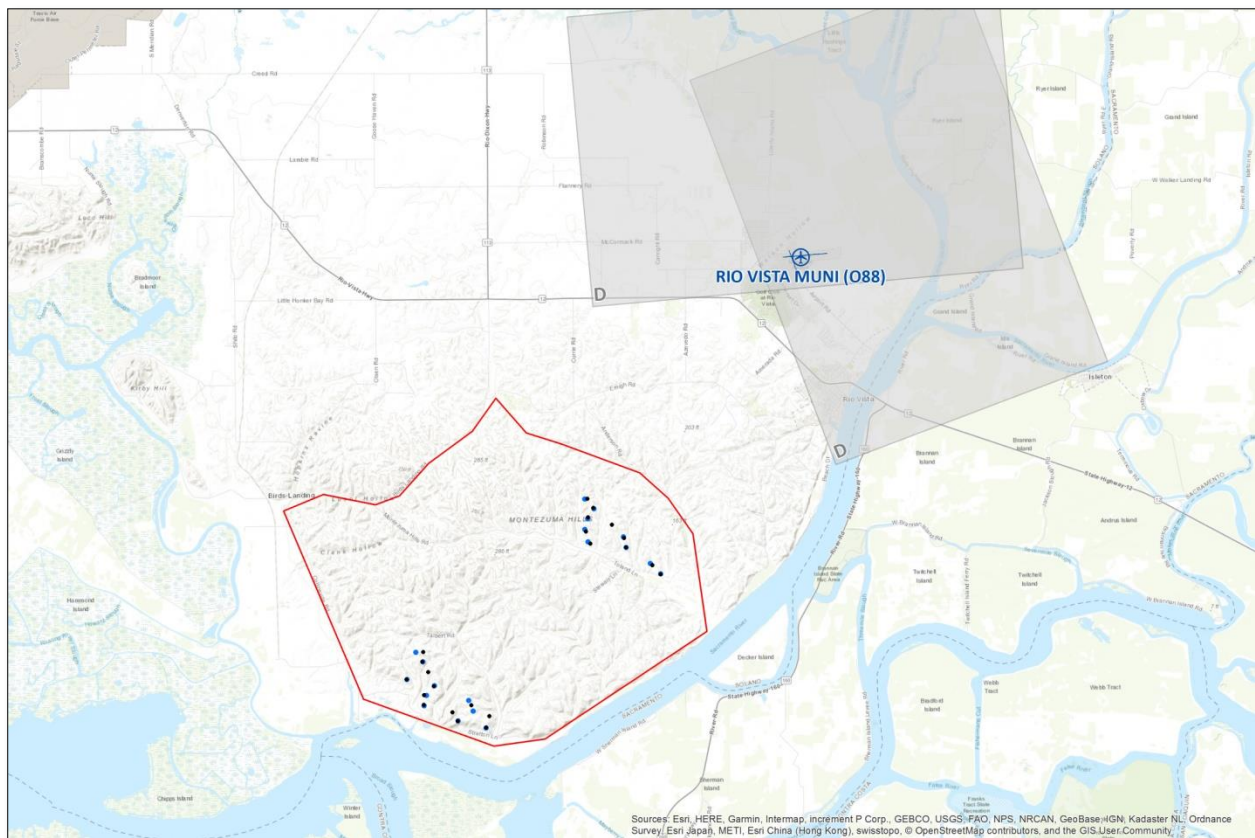


Figure 3: VFR traffic pattern airspace in proximity to the Solano Phase 1 and Phase 4 wind projects



Visual Flight Rules (VFR) Routes

During periods of marginal Visual Meteorological Conditions (VMC) – low cloud ceilings and one statute mile visibility – pilots often operate below the floor of controlled airspace. Operating under these weather conditions requires pilots to remain within one statute mile of recognizable land marks such as roads, rivers, and railroad tracks. The FAA protects for known and regularly used VFR routes by limiting structure heights within two statute miles of these routes to no greater than 14 CFR Part 77.17(a)(1) – a height of 499 feet AGL at the site of the object.

The Solano Phase 1 and Phase 4 wind projects are located in proximity to railroads, highways, and transmission lines that may be used as VFR routes ([Figure 4](#)). However, operational data describing the usage of these potential routes is not available. If the FAA determines that these potential VFR routes are flown regularly, it could limit wind development in excess of 499 feet AGL and within two statute miles of these landmarks (hatched orange, [Figure 4](#)).



Figure 4: Potential VFR routes in proximity to the Solano Phase 1 and Phase 4 wind projects



Instrument Departures

In order to ensure that aircraft departing during marginal weather conditions do not fly into terrain or obstacles, the FAA publishes instrument departure procedures that provide obstacle clearance to pilots as they transition between the terminal and enroute environments. These procedures contain specific routing and minimum climb gradients to ensure clearance from terrain and obstacles.

Proposed structures that exceed instrument departure procedure obstacle clearance surfaces would require an increase to instrument departure procedure minimum climb gradients. If the FAA determines that this impact would constitute a substantial adverse effect, it could be used as the basis for determinations of hazard.

Instrument departure procedure obstacle clearance surfaces (e.g., [Figure 5](#)) are in excess of other lower surfaces and should not 493 or 591 foot AGL wind turbines within the defined study area.

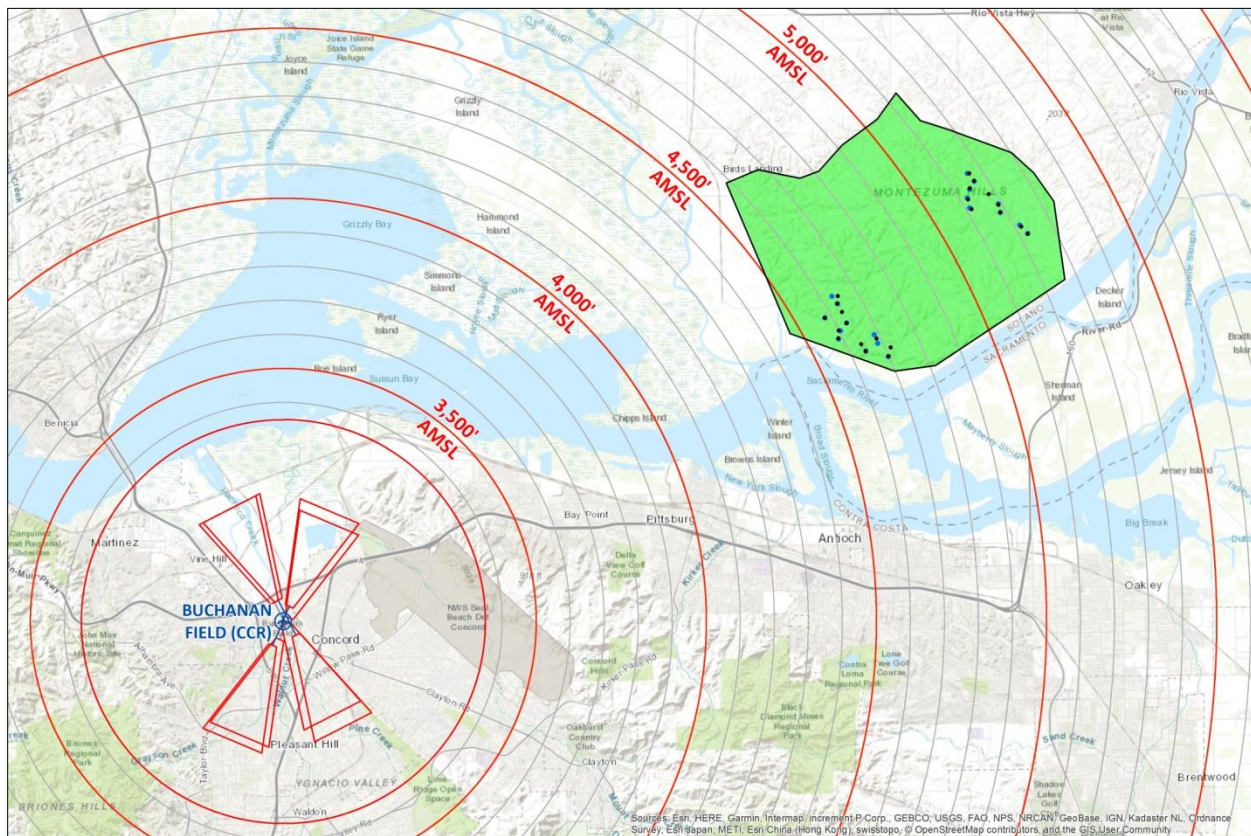


Figure 5: Buchanan Field Airport (CCR) visual climb over airport (VCOA) departure procedure assessment



Instrument Approaches

Pilots operating during periods of reduced visibility and low cloud ceilings rely on terrestrial and satellite based navigational aids (NAVAIDS) in order to navigate from one point to another and to locate runways. The FAA publishes instrument approach procedures that provide course guidance to on-board avionics that aid the pilot in locating the runway. Capitol Airspace assessed a total of 28 published instrument approach procedures at eight public-use airports and one military airport in proximity to the Solano Phase 1 and Phase 4 wind projects.

Proposed wind turbines that exceed instrument approach procedure obstacle clearance surfaces would require an increase to their minimum altitudes. Increases to these altitudes, especially critical *decision altitudes (DA)* and *minimum descent altitudes (MDA)*, can directly impact the efficiency of instrument approach procedures. If the FAA determines this impact to constitute a substantial adverse effect it could be used as the basis for determinations of hazard.

Instrument approach procedure obstacle clearance surfaces (e.g., [Figure 6](#)) are in excess of other lower surfaces and should not limit 493 or 591 foot AGL wind turbines within the defined study area.

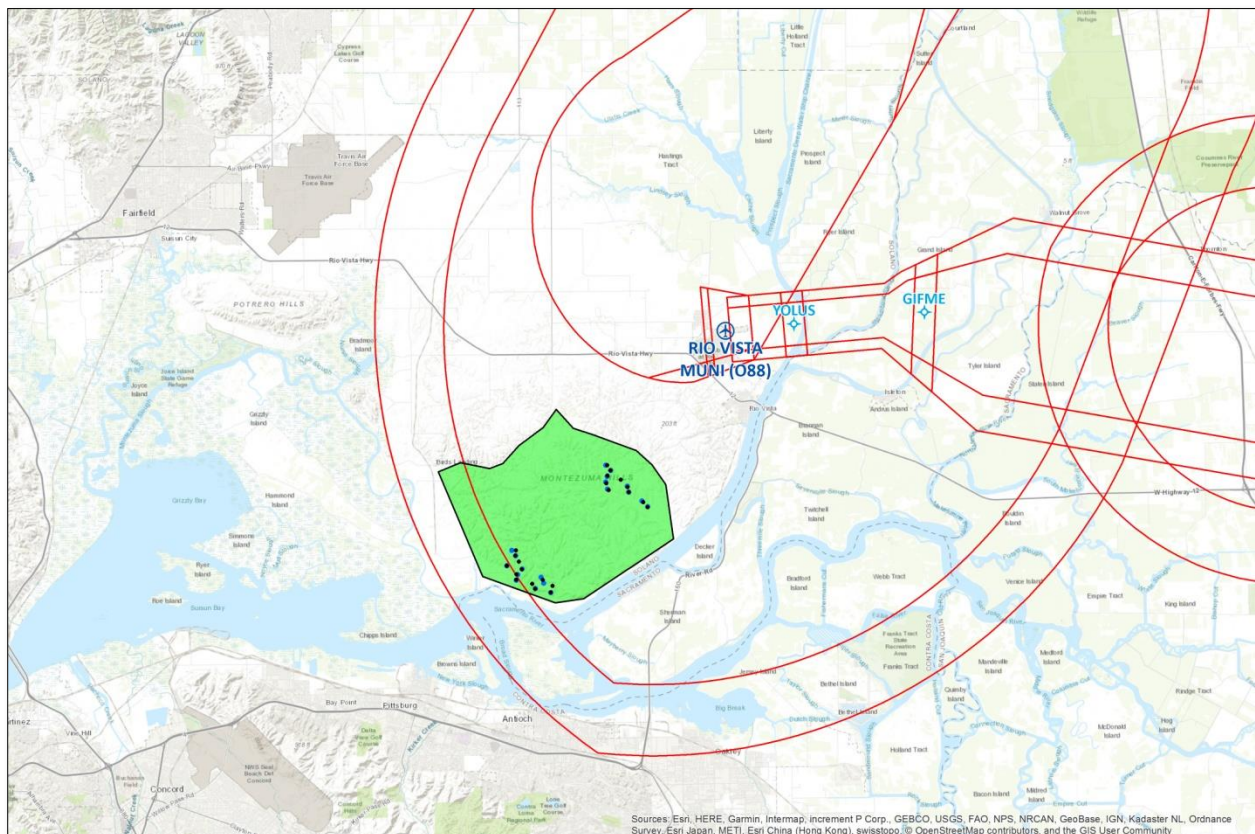


Figure 6: Rio Vista Municipal Airport (O88) RNAV (GPS) Approach to Runway 25



Instrument approach procedures assessed:

Travis Air Force Base (SUU)

ILS or Localizer Approach to Runway 03L
ILS or Localizer Approach to Runway 21L
ILS Approach to Runway 21L (CAT II)
RNAV (GPS) Approach to Runway 03L
RNAV (GPS) Approach to Runway 21L
RNAV (GPS) Approach to Runway 21R
TACAN Approach to Runway 03L
TACAN Approach to Runway 21L
TACAN Approach to Runway 21R

Livermore Municipal (LVK)

ILS Approach to Runway 25R
RNAV (GPS) Approach to Runway 25R
Localizer Approach to Runway 25R

Lodi (103)

RNAV (GPS)-B Circling Approach
VOR-A Circling Approach

Rio Vista Municipal (O88)

RNAV (GPS) Approach to Runway 25
VOR/DME-A Circling Approach

Buchanan Field (CCR)

RNAV (GPS) Y Approach to Runway 19R
LDA Approach to Runway 19R
VOR Approach to Runway 19R

Napa County (APC)

ILS or Localizer Approach to Runway 36L
RNAV (GPS) Approach to Runway 06
RNAV (GPS) Y Approach to Runway 36L
RNAV (GPS) Z Approach to Runway 36L
VOR Approach to Runway 06

Byron (C83)

RNAV (GPS) Approach to Runway 30

University (EDU)

RNAV (GPS) Approach to Runway 17

Nut Tree (VCB)

RNAV (GPS) Approach to Runway 20
VOR-A Circling Approach



Enroute Airways

Enroute airways provide pilots a means of navigation when flying from airport to airport and are defined by radials between VHF omni-directional ranges (VORs). The FAA publishes minimum altitudes for airways to ensure clearance from obstacles and terrain. The FAA requires that each airway have a minimum of 1,000 feet of obstacle clearance in non-mountainous areas and normally 2,000 feet in mountainous areas.

Proposed structures that exceed enroute airway obstacle clearance surfaces would require an increase to their minimum obstruction clearance altitudes (MOCA) and/or minimum enroute altitudes (MEA). If the FAA determines that this impact would affect a significant volume of operations it could be used as the basis for determination of hazard.

Enroute airway obstacle clearance surfaces (e.g., [Figure 7](#)) are in excess of other lower surfaces and should not limit increasing the wind turbine rotor diameter to 493 or 591 feet AGL at any of the proposed locations.

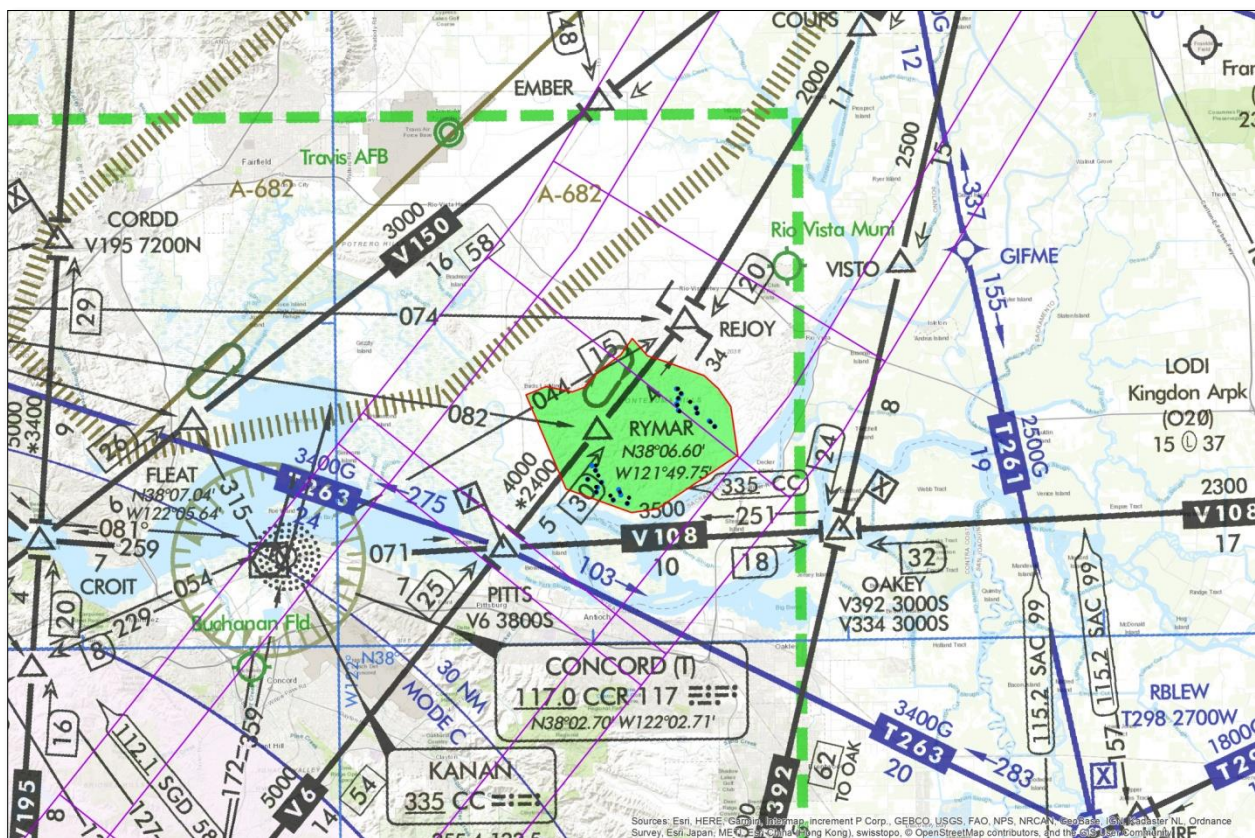


Figure 7: Low altitude enroute chart L-02 with V6 obstacle evaluation areas (purple)



Minimum Vectoring/IFR Altitudes

The FAA publishes minimum vectoring altitude (MVA) and minimum instrument flight rules (IFR) altitude charts that define sectors with the lowest altitudes at which air traffic controllers can issue radar vectors to aircraft based on obstacle clearance. The FAA requires that sectors have a minimum of 1,000 feet of obstacle clearance in non-mountainous areas and normally 2,000 feet in mountainous areas.

Proposed structures that exceed minimum vectoring/IFR altitude sector obstacle clearance surfaces would require an increase to the altitudes usable by air traffic control for vectoring aircraft. If the FAA determines that this impact would affect a significant volume of operations (*as few as one per week*), it could result in determinations of hazard.¹

Northern California (NCT) Terminal Radar Approach Control (TRACON)

NCT_BAB_MVA: Sector BAB_D

The MVA is 1,700 feet AMSL. The associated obstacle clearance surface is 749 feet AMSL and is the lowest height constraint in the northeastern section of the study area. USGS elevation data indicates that this surface could limit 493 and 591 foot AGL wind turbines in the northern and northeastern sections of the study area, including five of the 591 foot AGL Phase 1 turbines (*P1R1:4, P1N1*).

NCT_MCC_MVA: Sector BAB_D

The MVA is 1,700 feet AMSL. The associated obstacle clearance surface (hatched blue, [Figure 8](#)) is 749 feet AMSL and is the lowest height constraint in the northeastern section of the study area. USGS elevation data indicates that this surface could limit 493 foot AGL (red areas, [Figure 8](#)) and 591 foot AGL (red and orange areas, [Figure 8](#)) wind turbines in the northern and northeastern sections of the study area, including five of the 591 foot AGL Phase 1 turbines (*P1R1:4, P1N1*).

NCT_903S_MVA: 1,700 foot AMSL Sector

The MVA is 1,700 feet AMSL ([Figure 9](#)). The associated obstacle clearance surface is 749 feet AMSL and is the lowest height constraint overlying the entire study area. USGS elevation data indicates that this surface could limit 493 foot AGL (red areas, [Figure 9](#)) in the northwestern and central sections of the study area. However, none of the proposed wind turbines are located in this area. This surface could limit 591 foot AGL (red and orange areas, [Figure 9](#)) wind turbines throughout the study area including five Phase 1 turbines (*P1R1:4, P1N1*) and seven Phase 4 turbines (*P4N1:4, P4N7:9*).

¹ Capitol Airspace analyzed the Travis Air Force Base (AFB) minimum vectoring altitude chart provided through CRADA in 2011. It was determined that the associated obstacle clearance surfaces are in excess of other lower surfaces and should not limit up to 591 foot AGL wind turbines within the defined study area.

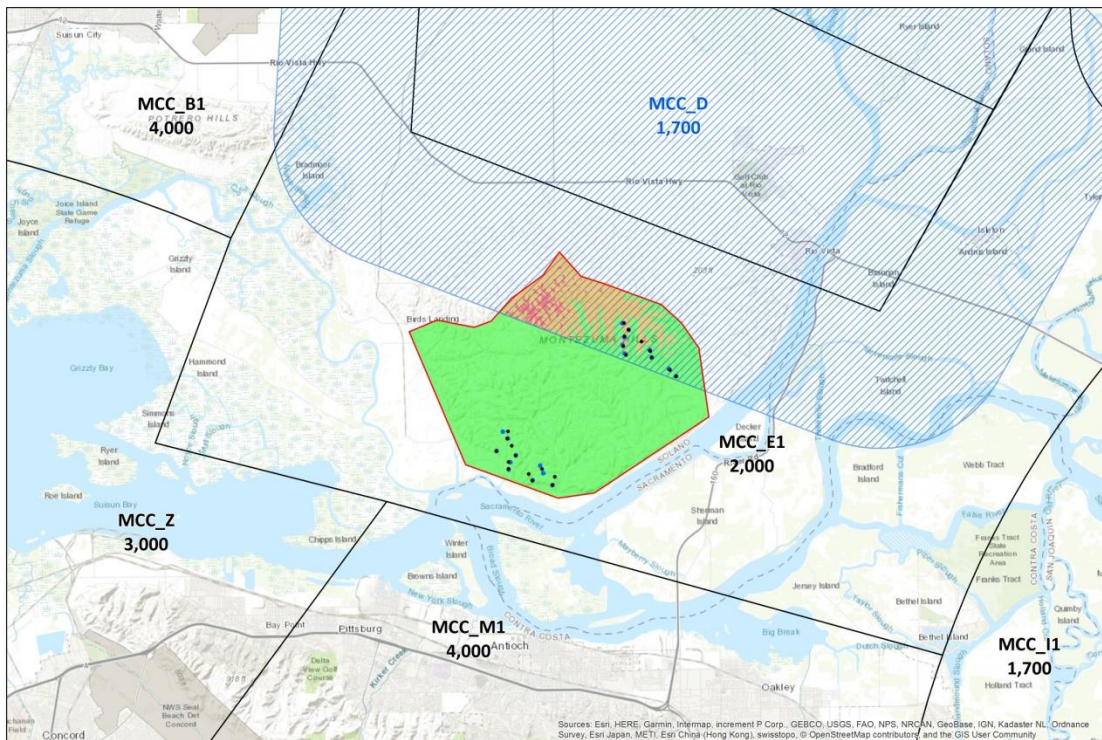


Figure 8: Northern California (NCT) TRACON “NCT_MCC_MVA” MVA sectors (black) with Sector MCC_D obstacle evaluation area (hatched blue)

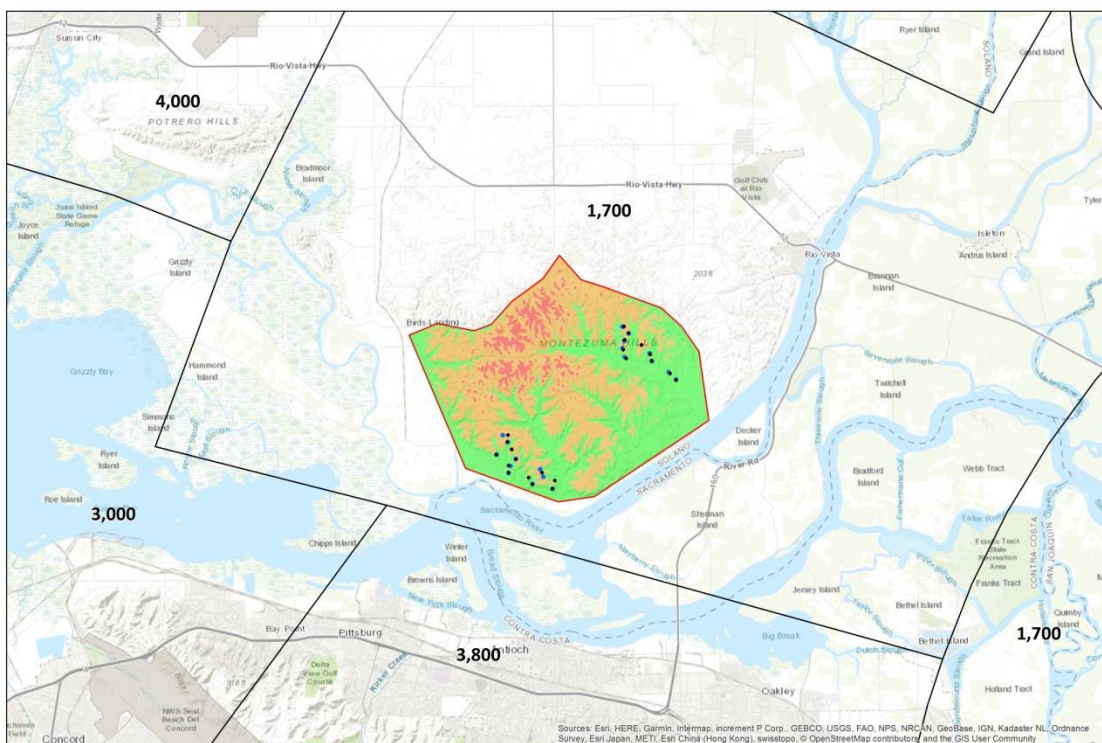


Figure 9: Northern California (NCT) TRACON “NCT_903S_MVA” MVA sectors (black) with Sector MCC_D obstacle evaluation area (hatched blue)



Very High Frequency (VHF) Omni-Directional Range (VOR)

The FAA has established 0.60° (Conventional VOR) and 0.75° (Doppler VOR) screening angles in order to identify proposed structures that may have a negative impact on VORs. This surface extends upward and outward from the VOR to a distance of up to 8 nautical miles. Proposed wind turbines that exceed this surface may interfere with the services provided by the VOR. If the FAA determines this impact to be significant it can be used as the basis for determinations of hazard.

Travis (SUU) TACAN

The 0.60° screening surface, typically applied for Conventional VORs, overlies the Solano Phase 1 and Phase 4 wind projects (**Figure 10**). The height of this surface ranges from 522 to 540 feet AMSL where it overlies the study area. USGS elevation data indicates that 493 and 591 foot AGL (orange area, **Figure 10**) wind turbines would exceed this surface. However, none of the proposed wind turbines are located in this area.

If line of sight exists between the Travis (SUU) TACAN and wind turbines proposed in this area, FAA Technical Operations may perform further review. If further review determines that proposed wind turbines would have a substantial adverse effect on navigational aids, it could result in determinations of hazard.

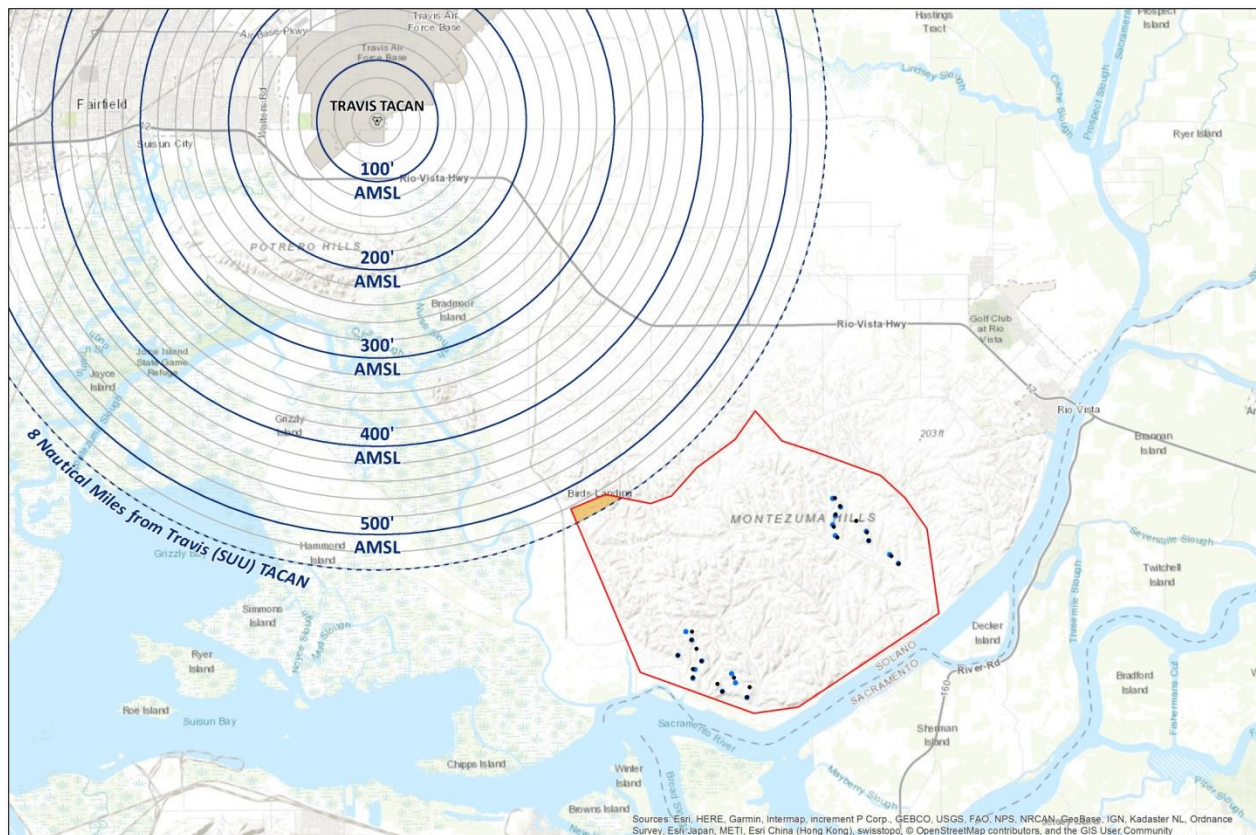


Figure 10: Travis (SUU) TACAN 0.60° screening surface



Military Airspace and Training Routes

Since the FAA does not protect for military airspace or training routes, impact on their operations cannot result in a determination of hazard. However, the FAA will notify the military of proposed wind turbines located within these segments of airspace. If the planned development area is located on federal land, impact on military airspace or training routes may result in the denial of permits by the Bureau of Land Management.

Military airspace and training routes do not overlie the Solano Phase 1 and Phase 4 wind projects ([Figure 11](#)). As a result, proximity to these segments of airspace should not result in military objections to proposed wind turbines.

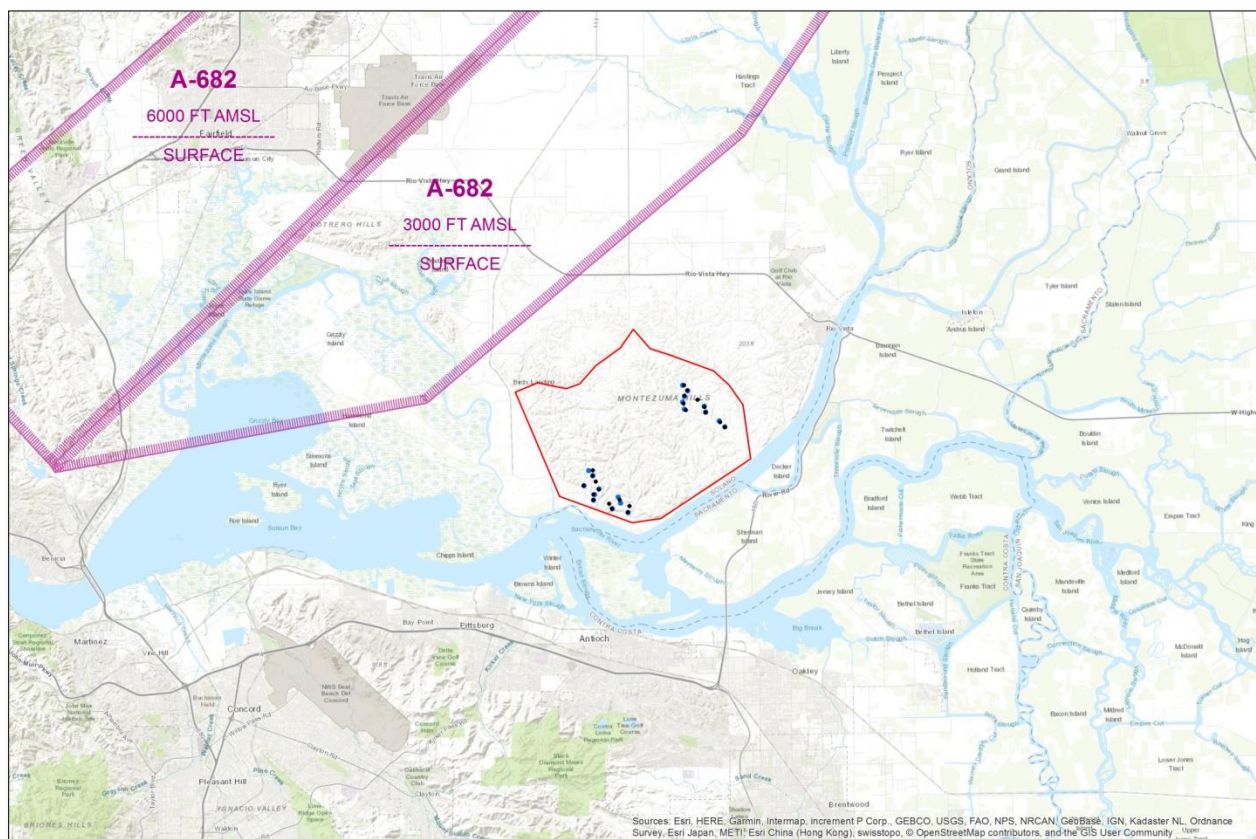


Figure 11: Alert areas in proximity to the Solano Phase 1 and Phase 4 wind projects



Conclusion

At 493 and 591 feet AGL, all of the Phase 1 wind turbines will exceed the Rio Vista Municipal Airport 14 CFR Part 77.17(a)(2) imaginary surface ([Figure 2](#)) and will be identified as obstructions. Additionally, at 591 feet AGL, proposed wind turbines will exceed 77.17(a)(1) – a height of 499 feet AGL at the site of the object – and will be identified as obstructions regardless of location. However, heights in excess of these surfaces are feasible provided proposed wind turbines do not exceed FAA obstacle clearance surfaces.

Obstacle clearance surfaces overlying the Solano Phase 1 and Phase 4 wind projects are a constant 749 feet AMSL ([Figure 12](#)) and are associated with Northern California (NCT) TRACON minimum vectoring altitude sectors ([Figure 8](#) & [Figure 9](#)). Proposed structures that exceed these surfaces would require an increase to minimum vectoring altitudes. If the FAA determines that this impact would affect a significant volume of operations (*as few as one per week*), it could result in determinations of hazard.

USGS elevation data indicates that these surfaces could limit 493 foot AGL wind turbines on higher terrain in the northwestern and central sections of the study area (red areas, [Figure 13](#)). However, none of the proposed wind turbines are located in these areas. These surfaces could limit 591 foot AGL wind turbines throughout the study area (red and orange areas, [Figure 13](#)), including five Phase 1 turbines (*P1R1:4, P1N1*) and seven Phase 4 turbines (*P4N1:4, P4N:9*) (red and orange areas, [Figure 13](#)).

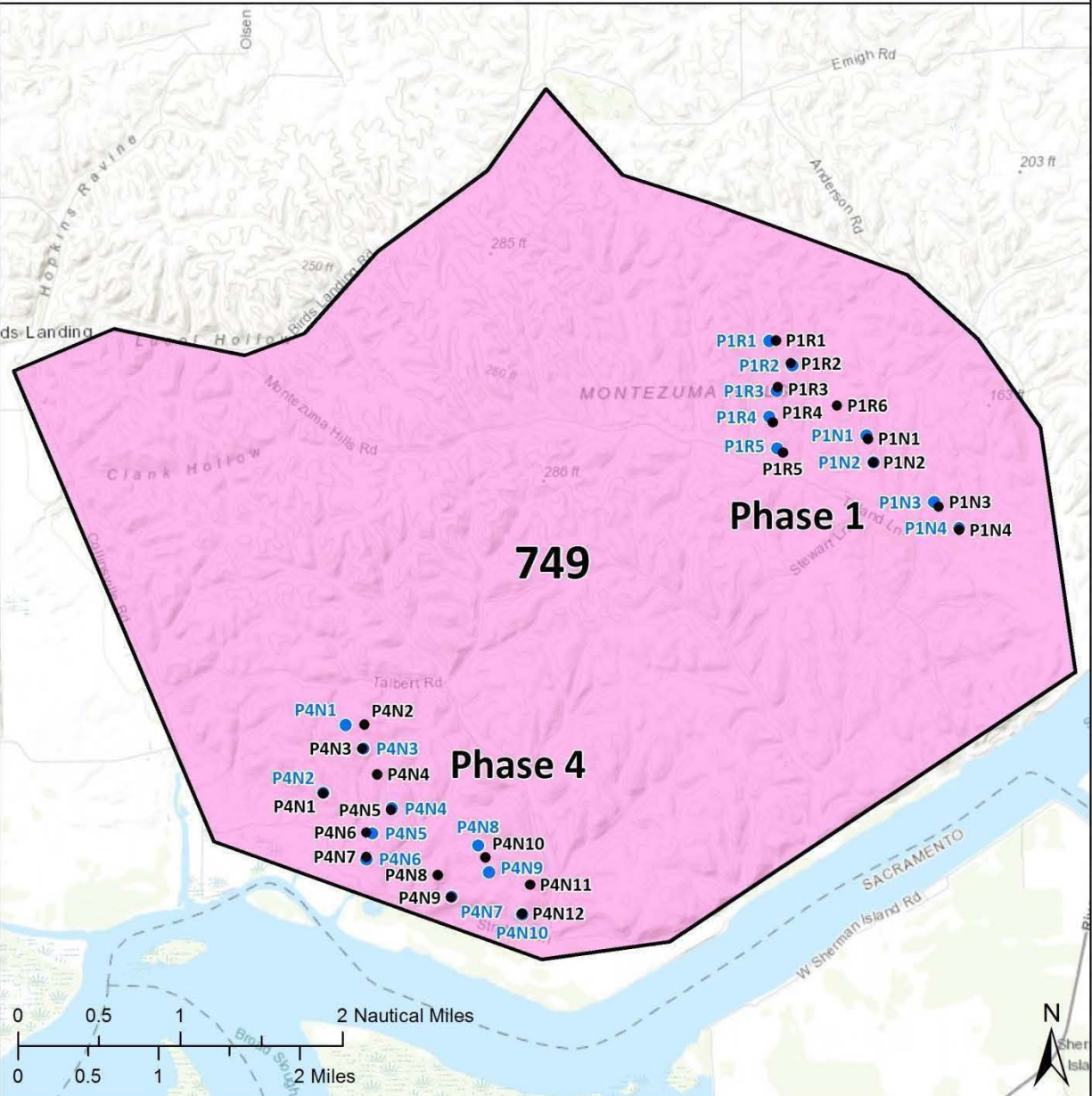
At 493 and 591 feet AGL, wind turbines proposed in the northwestern section of the study area would exceed the Travis (SUU) TACAN 0.60° screening surface ([Figure 10](#)). If further review determines that wind turbines proposed in this area would have a substantial adverse effect on navigational aids, it could result in determinations of hazard. However, none of the proposed wind turbines are located in this area.

The AGL Clearance Map ([Figure 13](#)) is based on USGS National Elevation Dataset (NED) 1/3 Arc Second data which has a vertical accuracy of generally +/- 7 meters. Therefore, the AGL Clearance Map should only be used for general planning purposes and not exact structure siting. In order to avoid the likelihood of determinations of hazard, proposed structure heights must adhere to the height constraints depicted in the Composite Map ([Figure 12](#)).

If you have any questions regarding the findings of this study, please contact [Joe Anderson](#) or [Orlando Olivas](#) at (703) 256-2485.



Proposed structures that exceed 14 CFR Part 77.17(a)(1) - a height of 499 feet AGL at the site of the object - will be identified as obstructions regardless of their location.



Obstacle Clearance Surface

- 749 Feet AMSL
- Proposed Wind Turbine (493' feet AGL)
- Proposed Wind Turbine (591' feet AGL)

All heights above mean sea level (AMSL)

Solano Phase 1 and Phase 4 Wind Project
Composite Height Constraint Map

Plot Date:
24 July 2018

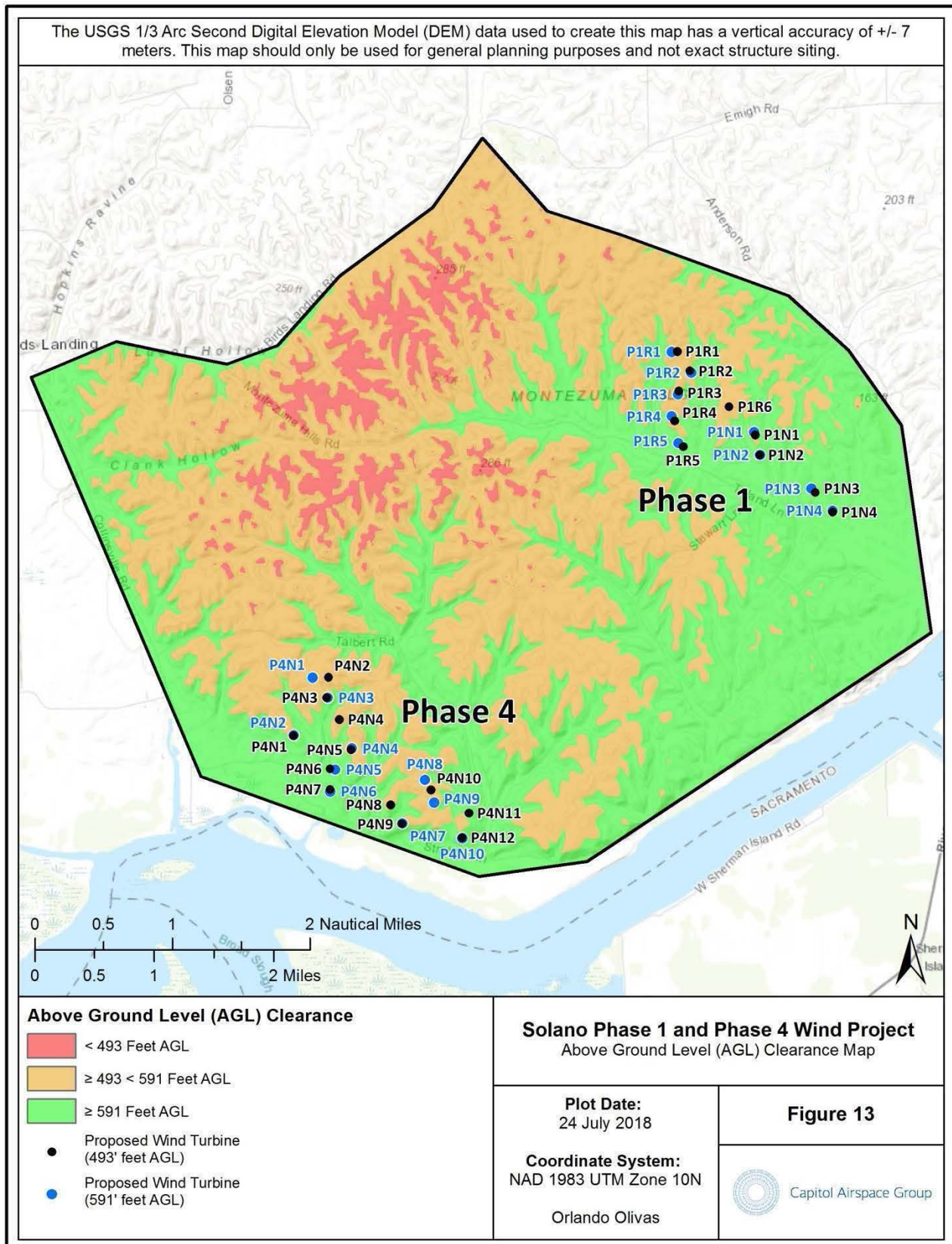
Coordinate System:
NAD 1983 UTM Zone 10N

Orlando Olivas

Figure 12



Capitol Airspace Group



SMUD Solano 4

**Cumulative Impact Study and Mitigation Solution Results
for
2018 Vestas V136 and V150 Wind Turbine Layouts**

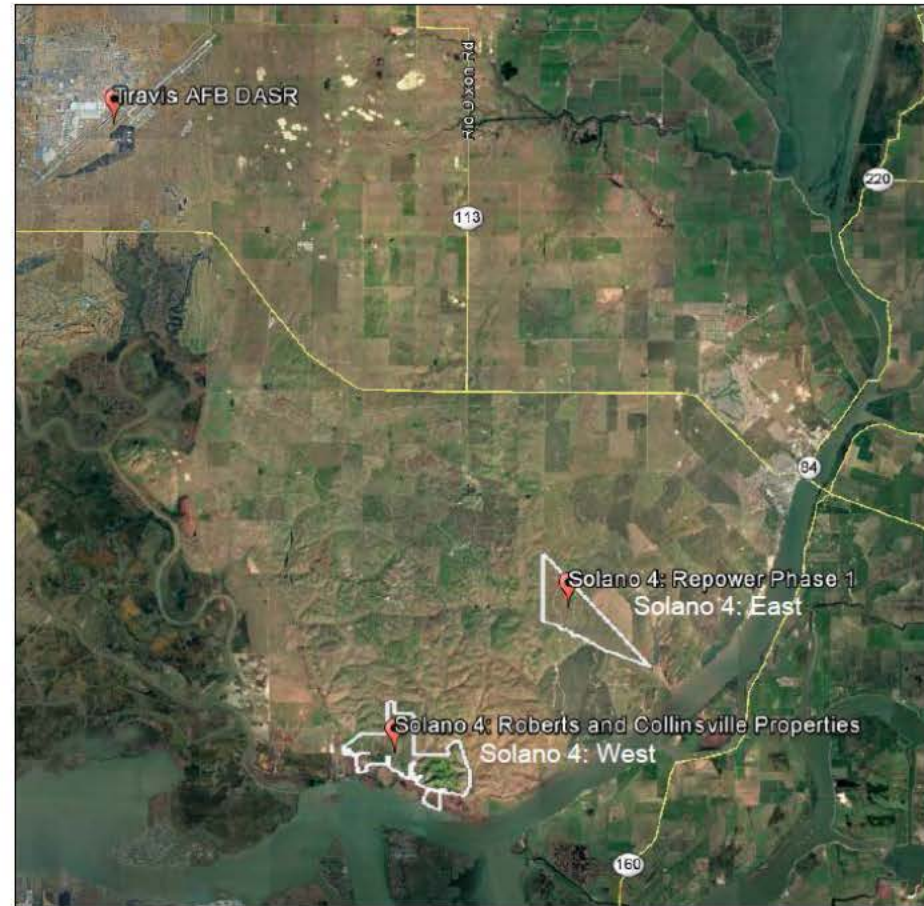
6 September 2018

Background

- **During the Windfarm RePower Group meeting on April 21, 2016, Westslope presented the results of an RLOS analysis and cumulative impact study for the Solano 4 wind project:**
 - **“RLOS analysis and qualitative review of radar data shows that existing 59 Kenetech wind turbines do not interfere with the Travis AFB radar**
 - **RLOS analysis and cumulative impact study indicates that Solano 4 will interfere with the Travis AFB radar**
 - **Incremental drop in primary Pd over the WRA predicted at 0.3% below 4,000 feet MSL and 0.4% below 10,000 feet MSL**
 - **Cumulative impact of other existing wind projects and Solano 4 predicted to decrease the primary Pd on the AT controllers’ displays by 4.8 percent below 4,000 feet MSL and 4.4 percent below 10,000 feet MSL**
 - **Within the 5% Pd tolerance set forth under the CRADA in 2010**
 - **One occasional false primary track on the AT controllers’ display**
 - **Effects not expected to be significant and should be manageable for a small 17 turbine project**
 - **No impacts to the secondary radar co-located with Travis AFB DASR”**

Change in Wind Turbine Technology

- **Solano 4 wind project in 2016 consisted of 17 Vestas V117 wind turbines at a blade-tip height of 488 feet AGL**
 - Located on the SMUD Roberts and Collinsville properties
- **2018 Solano 4 wind project consists of either 22 Vestas V136 wind turbines at a blade-tip height of 493 feet AGL or 19 Vestas V150 wind turbines at a blade-tip height of 591 feet AGL**
 - New version of Solano 4 proposes wind turbines located on the SMUD Roberts and Collinsville properties (Solano 4 West) and at the Solano 1 repower site (Solano 4 East)
- **Same as the 2016 V117 wind turbines, the 2018 V136 and V150 wind turbines will be within radar line-of-sight of and will interfere with the Travis AFB DASR**
- **Westslope updated the 2016 cumulative impact study to account for the Solano 4 V136 and V150 layouts using the same method used under CRADA No. 10-002**



Solano 4 West: Roberts and Collinsville Properties



wind

Solano 4 West: Roberts and Collinsville Properties

2018 Cumulative Impact Study Results

- Results show that the primary Pd out of the Travis AFB DASR over the WRA will decrease by 0.3 percent for the V136 layout and by 0.2 percent for the V150 layout below 4,000 feet MSL and 10,000 feet MSL
 - Less than predicted for the 2016 Solano 4 V117 wind turbines
- Similar trend is expected for the primary Pd on the AT controllers' display based on the findings of CRADA No. 10-002's Radar Working Group
- Cumulative impact of existing wind projects and 2018 Solano 4 West wind project predicted to be within the 5% primary Pd tolerance set forth under the aforementioned CRADA

Project	No. of Wind Turbines	Below 4,000 feet MSL		Below 10,000 feet MSL	
		Pd Drop	Cumulative Pd Drop	Pd Drop	Cumulative Pd Drop
Shiloh III	52	-1.3%	-1.3%	-1.2%	-1.2%
Montezuma I	16	-0.2%	-1.5%	-0.2%	-1.4%
Solano Phase 3	55	-1.3%	-2.8%	-1.3%	-2.7%
Montezuma II	37	-0.6%	-3.4%	-0.5%	-3.2%
Shiloh IV	50	-0.4%	-3.8%	-0.6%	-3.8%
Solano 4 (2016)	16	-0.3%	-4.1%	-0.4%	-4.2%
vs. Solano 4 (V136)	12	-0.3%	-4.1%	-0.3%	-4.1%
and Solano 4 (V150)	10	-0.2%	-4.0%	-0.2%	-4.0%

Pd drop out of the ASR-11 over the WRA

Description	Below 4,000 feet MSL	Below 10,000 feet MSL
Pd tolerance set forth by CRADA's Operations Working Group	5%	5%
Cumulative Pd drop		
Solano 4 West (2016)	-4.1%	-4.2%
vs.		
Solano 4 West (V136)	-4.1%	-4.1%
and		
Solano 4 West (V150)	-4.0%	-4.0%
Difference in Pd out of the ASR-11 and on the AT controllers' displays	-0.6%	-0.3%
Remaining Pd margin		
Solano 4 West (2016)	0.3%	0.5%
vs.		
Solano 4 West (V136)	0.3%	0.6%
and		
Solano 4 West (V150)	0.4%	0.7%

Remaining Pd margin over the WRA

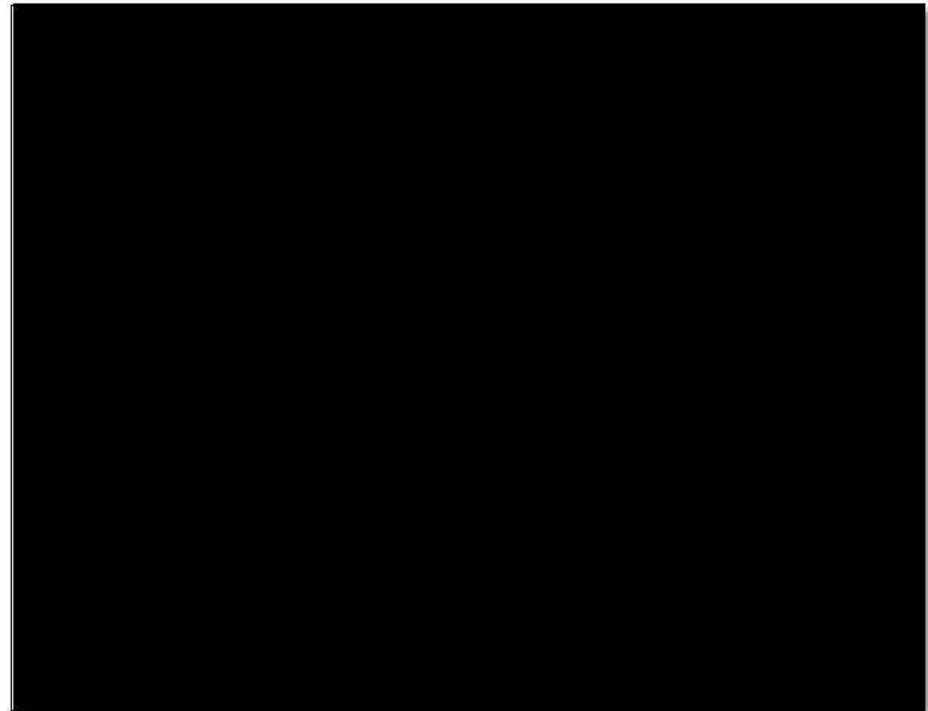
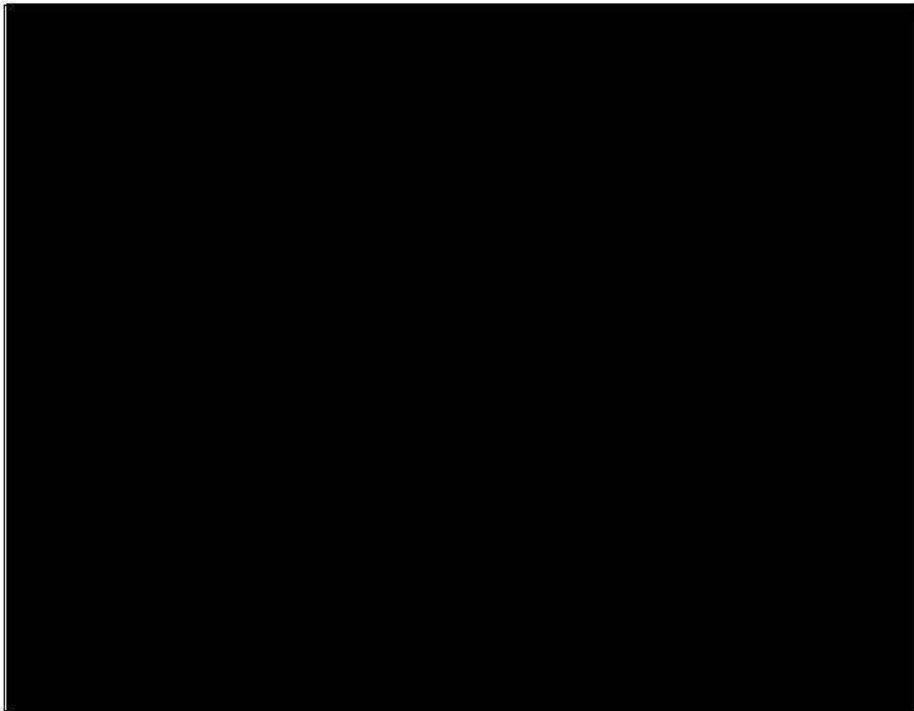
Mitigation Solution

589 wind turbines in operation in the
Montezuma Hills

- Existing Solano Phase 1 wind project consists of 23 Vestas V47 wind turbines
 - 16 wind turbines at a blade-tip height of 242 feet AGL and 7 wind turbines at a blade-tip height of 291 feet AGL
- RLOS analysis conducted by Westslope shows that the Solano Phase 1 wind turbines are within RLOS and currently interfering with the Travis AFB DASR
- Reducing the number of wind turbines within radar line-of-sight of the Travis AFB DASR should reduce the cumulative impact on primary Pd
- 2018 Solano 4 East repower consists of either 10 Vestas V136 wind turbines at a blade-tip height of 493 feet AGL or 9 Vestas V150 wind turbines at a blade-tip height of 591 feet AGL



Solano Phase 1 Repower



Solano 4 East: Repower of Phase 1

2018 Cumulative Impact Study Results

- Westslope conducted a Monte Carlo simulation to determine whether the Solano 4 East repower V136 wind turbines or V150 wind turbines would negate the predicted primary Pd drop as a result of the Solano 4 West V136 wind turbines or V150 wind turbines
- Same assumptions used to predict the drop in Pd as the simulation method used under CRADA No. 10-002
- Results show that the primary Pd out of the Travis AFB DASR over the WRA will increase by 0.2 percent

Project	No. of Wind Turbines	Below 4,000 feet MSL	Below 10,000 feet MSL
		Pd Drop	
Solano 4 West (2016)	16	-0.3%	-0.4%
vs.			
Solano 4 West (V136)	12	-0.3%	-0.3%
and			
Solano 4 West (V150)	10	-0.2%	-0.2%
From previous slide for comparison purposes			
Solano 4 East (2016)	8	+0.3%	+0.3%
vs.			
Solano 4 East (V136)	10	+0.2%	+0.2%
and			
Solano 4 East (V150)	9	+0.2%	+0.2%

Pd drop out of the ASR-11 over the WRA

Combined 2018 Cumulative Impact Study Results

- **Westslope's simulations show the following:**
 - **For Solano 4 West, the primary Pd out of the Travis AFB DASR over the WRA will decrease by 0.3 percent for the V136 layout and by 0.2 percent for the V150 layout**
 - **For Solano 4 East, the primary Pd out of the Travis AFB DASR over the WRA will increase by 0.2 percent for both the V136 layout and the V150 layout**
- **Results show that the V136 layouts for both Solano 4 East and West areas will result in a 0.1 percent overall decrease in the primary Pd over the WRA**
- **Westslope does not expect that a 0.1 percent drop in the primary Pd over the WRA will result in a material difference to Travis AFB radar operations**
- **V150 layout for the Solano 4 East Repower will negate the Pd drop over the WRA as a result of the Solano 4 West V150 layout**

Conclusions

- **2018 Solano 4 East and West projects will replace 23 existing V47 wind turbines that are currently interfering with the Travis AFB DASR with either 22 Vestas V136 wind turbines or 19 Vestas V150 wind turbines**
- **Results show that the V136 wind turbines for both Solano 4 East and West will result in 0.1 percent decrease in the primary Pd over the WRA**
 - **Westslope does not expect that a 0.1 percent drop in the primary Pd over the WRA will result in a material difference to Travis AFB radar operations**
- **V150 wind turbines for the Solano 4 East will negate the Pd drop over the WRA as a result of the Solano 4 West V150 wind turbines**
- **False targets not expected to be significant and should be manageable for either 10 or 12 Solano 4 wind turbines**
- **No impacts to the secondary radar co-located with Travis AFB DASR**

Recommendations

- **File 2018 Solano 4 East and West wind turbines with the FAA to start the federal government OE/AAA process**
- **Formalize a Mitigation Response Team**
 - Further investigate the effects of replacing 23 Solano Phase 1 wind turbines with up to 22 Solano 4 East and West wind turbines
 - Determine whether radar effects will have an operational impact on Travis AFB's mission
 - Identify mitigation options
- **Mitigation options:**
 - SMUD to enter agreement to provide voluntary contribution to fund for an optimization update to the Travis AFB DASR





OE/AAA Aeronautical Study Process
July 31st, 2018

The United States Congress has charged the Federal Aviation Administration (FAA) with the responsibility to promote air commerce in the United States. As part of this responsibility, the FAA is tasked with ensuring air safety and preserving the National Airspace System (NAS). It is through these mandates that the FAA draws its authority to conduct aeronautical studies of tall structures including wind turbines.¹ Below is an overview of the typical process and required steps for working through the aeronautical study process. Although the Department of Defense's (DoD) formal review process occurs concurrently with FAA's aeronautical study, the DoD process is described separately.

FAA Step One: Filing

Developers intending to build structures in excess of 200 feet above ground level (AGL), or in excess of established notification standards (lower closer to airports), must submit a notice to the FAA at least 45 days prior to the start of construction.² Primarily, this process is conducted via an online submittal process through the FAA's OE/AAA website.³ Prior to the FAA's establishment of the FAA OE/AAA automation system, notice was provided to the FAA by submitting FAA Form 7460-1, *Notice of Proposed Construction or Alteration*. The FAA and industry continues to refer to these filings as "7460-1" filings.

FAA 7460-1 filings require very basic information about the project to be studied. Specifically, the FAA requires that each wind turbine's location (latitude and longitude in HH:MM:SS.SS format), ground elevation (above mean sea level (AMSL)), and height (AGL) be submitted.

FAA 7460-1 filings must be submitted for each point on a project, with few exceptions. For wind and transmission line projects, individual points must be submitted for each turbine, met tower, and transmission line tower. Once the FAA receives and verifies these filings, an aeronautical study number is issued for each point. This begins the aeronautical study process.

FAA Step Two: Initial Review

Each project is assigned to a specialist within the FAA Obstruction Evaluation Group (OEG). For most projects, there are ten different government offices that take part in the study process, including: Airports, Instrument Flight Procedures Impact Team, Flight Standards, Technical Operations, Frequency Management, United States Air Force, United States Navy, United States Army, Department of Homeland Security (DHS), and the Department

¹ 14 CFR §77 – *Safe, Efficient Use, and Preservation of the Navigable Airspace*

² 14 CFR §77.7 – *Form and time of notice*; and §77.9 – *Construction or alteration requiring notice*

³ <https://oeaaa.faa.gov>



of Defense (DoD) Military Aviation and Installation Assurance Siting Clearinghouse (hereafter referred to as the “Clearinghouse”).

Technicians in each of these offices will review each point to ensure that the planned structure does not interfere with their areas of responsibility. For example, the Instrument Flight Procedures Impact Team will assess for impact on instrument approach and departure procedures at airports. The DoD will consider impacts to their training operations and defense readiness. Since the DoD review process is evolving, it is discussed separately at the end of the FAA process.

Once each office has assessed the proposed project, they submit a response of either “objection” or “no-objection” via the FAA OE/AAA system. During this preliminary review period, the project is considered to be in “work status” by the FAA. Review by all responding offices typically takes approximately 60 to 90 days. After all offices have responded, the project is moved from “work status” into “evaluation status”. It is at this point that the FAA Obstruction Evaluation Specialist, typically a former air traffic controller, will assess all of the responses and determine whether to issue a Notice of Presumed Hazard (NPH) or a favorable Determination of No Hazard (DNH).

If any of the wind turbines exceed a 14 CFR Part 77 imaginary surface, then a NPH is guaranteed (e.g., all turbines taller than 499 feet AGL will exceed an imaginary surface and will be issued a NPH). Additionally, if the wind turbines have any adverse effect on the NAS, then a NPH will be issued. In contrast, if the wind turbines do not exceed an imaginary surface and have no adverse effect, then the FAA would issue favorable Determinations of No Hazard (DNH).

FAA Step Three: Preliminary Results in a Notice of Presumed Hazard (NPH)

A NPH letter is meant to be a means for the FAA to notify the developer that FAA has identified an issue that will require further aeronautical study in order to determine whether or not the structure will pose a hazard to air navigation. Typically, the FAA will also include in this letter any objections received by the various responding offices in the FAA, DoD, and DHS.

FAA Step Four: Responding to a Notice of Presumed Hazard (NPH)

While there are many methods to resolve objections received on a project, nearly all NPH cases must be circularized to the public for comment. Public notices should be distributed to any party that can provide information relevant to FAA’s aeronautical study. The distribution list typically includes the following:⁴

⁴ As described in FAA Order 7400.2L Paragraph 6-3-17, “Circularization”



- All public-use airports within 13 nautical miles (NM) of the proposed wind turbines
- All private-use airports within 5 NM of the proposed wind turbines
- Any affected airport
- The air traffic facility that provides radar vectoring services in the vicinity of the proposed wind turbines
- FAA Flight Standards
- All known aviation interested persons such as state, city, and local aviation authorities
- Flying clubs and organizations

It is through this 37 day public comment period that the FAA solicits feedback from the flying community. Once the comment period closes, the FAA will discard comments that are not of a valid aeronautical nature. During this time, Capitol Airspace may propose mitigation options that would strike a balance between the needs of the development project and FAA's need to preserve the NAS.

FAA Step Five: Final Determinations

At the end of the further aeronautical study and public comment period, the FAA will make a final decision and issue either a Determination of No Hazard or a Determination of Hazard.

Favorable determinations are valid for 18 months. A one-time extension can be requested. This request is further reviewed by the FAA and may result in the issuance of an extension letter for an additional 18 months.

FAA Step Six: After Construction

Supplemental notice may require notification to the FAA both prior to, and shortly after, construction. This allows the FAA to chart each wind turbine so that pilots are aware of the new, taller structures.

Capitol Airspace anticipates that the project's proximity to Travis Air Force Base will result in DoD objections based on the potential for impact on radar surveillance systems. In the past, this impact would likely result in the formation of a Mitigation Response Team (MRT) which would include representatives from the Air Force Base. Although the DoD review process is continuing to evolve, it is possible that the MRT will be utilized for review of these wind projects. The MRT conducts detailed analyses and negotiates mitigation options with the wind developer. If mitigation options are identified and agreed upon, the Mitigation Oversight Committee will review the solutions. This committee is chaired by the Executive Director of the DoD Clearinghouse. This process could add significant time to the overall review of the proposed project.

On December 12th, 2017, the United States Congress passed the 2018 National Defense Authorization Act (NDAA). This law modified the Clearinghouse and the DoD's review process of mission obstructions. At this time, it is not clear how these changes will be implemented by the



FAA and the DoD. Additionally, the United States Congress is considering revisions which may further change the process. It is therefore recommended to consult early with the DoD Clearinghouse and local military bases for all new wind projects.

Below is an overview of the process described in the 2018 NDAA. This is intended to be updated as the process is amended and evolved.

DoD Step One: Filing

When an aeronautical study is submitted to the FAA, the DoD review process is automatically initiated. The NDAA mandates that the DoD Clearinghouse shall establish procedures so that notification can occur at least one year prior to the start of construction for any project that is within radar line of sight.⁵

DoD Step Two: Initial Review

The DoD Clearinghouse will assess the scope, duration, and level of risk associated with adverse impacts on DoD operations and readiness.

DoD Step Three: Notice of Presumed Risk

If an adverse impact on DoD operations and readiness is identified, the DoD Clearinghouse would issue a “Notice of Presumed Risk.” This document outlines concerns identified by the DoD during their preliminary review. Capitol Airspace has yet to see the issuance of a Notice of Presumed Risk by the DoD.

If a Notice of Presumed Risk is issued, the DoD Clearinghouse shall also provide notice to the governor of California. The DoD Clearinghouse must consider any comments received by the governor.

DoD Step Four: Identify Feasible and Affordable Long-Term Mitigation Options

The DoD Clearinghouse should identify “feasible and affordable” mitigation options that can be taken by the DoD and/or the wind developer. Options can include modifications to DoD operations, upgrades or modifications to existing systems, acquiring new systems, or modifying the proposed wind project to include changing size, location, or technology.

DoD Step Five: Finding of Unacceptable Risk

The Secretary of Defense can only object to a project if the adverse impacts would result in an “unacceptable risk to the national security of the United States.” Unacceptable risk is defined as a proposed project that would endanger safety in air commerce directly related to DoD operations, would interfere with efficient use of navigable airspace directly related to DoD

⁵ 2018 NDAA Section 311 §183(a)(c)(6)



operations, or would significantly impair or degrade the capability of the DoD to conduct training, research, development, testing, or to maintain military readiness.

Within 30 days of making this determination, the Secretary of Defense must submit a report to the United States Congress, including multiple committees. The report should describe the basis for the finding as well as a discussion of why mitigation options were not feasible. Only unclassified reports will be released to the wind developer.



Date: February 9, 2021
Subject: Radar and Airspace Obstruction Evaluation Studies Update

The intent of this memorandum is to clarify the project name, Solano 4 Wind Project (Project), and the Project configuration presented in the following documents:

- Solano 4 Radar Line of Site Studies.pdf
- Solano 4 Obstruction Evaluation Studies.pdf

The Solano 4 Wind Project consists of Solano 4 West and Solano 4 East. Within the documents Solano 4 West is referred to as Solano Phase 4 and Solano 4 East is referred to as Solano Phase 1 Repower.

The Solano 4 Wind Project, as presented in our FAA aeronautical studies filings, consists of only one wind turbine configuration: (19) 591-foot above ground level (AGL) turbines. While considered in the following studies, the (22) 493-foot AGL option for the project was not pursued due to the negative impacts on radar.

SOLANO PHASE 1 REPOWER WIND PROJECT

BASIC RADAR LINE-OF-SIGHT STUDY

APRIL 16, 2018

This report contains proprietary information of Westslope Consulting, LLC. Please obtain requests for use or release of this report in writing from:

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Suite 100
Norman, Oklahoma 73072
(405) 310-6058

INTRODUCTION

The Solano Phase 1 Repower Wind Project (Project) will consist of 10 Vestas V136 (V136) wind turbines at a blade-tip height of 493 feet above ground level (AGL) or nine Vestas V150 (V150) wind turbines at a blade-tip height of 591 feet AGL.¹ Development of this Project will include a repower of the 23 existing Vestas V47 (V47) wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL.

Westslope Consulting, LLC (Westslope) prepared this report to determine whether this repower initiative will have an effect on nearby radar sites. Westslope conducted a radar line-of-sight (RLOS) analysis or Next Generation Radar (NEXRAD) weather radar screening analysis as appropriate for each of the proposed wind turbine heights and included analyses of the existing V47 wind turbines for comparison purposes.

This report provides the results of a Basic Radar Line-of-Sight Study conducted by Westslope, which includes the following:

- An initial analysis using the Department of Defense (DoD) Preliminary Screening Tool (PST);
- Research into other radar sites near the Project;
- A RLOS analysis for each radar site identified by Westslope using wind turbine blade-tip heights of 242 feet AGL, 291 feet AGL, 493 feet AGL, and 591 feet AGL; and
- A NEXRAD weather radar screening analysis using wind turbine blade-tip heights of 242 feet AGL, 291 feet AGL, 493 feet AGL, and 591 feet AGL.

ANALYSIS

Preliminary Screening Tool

Westslope conducted an initial analysis for Long Range Radar (LRR) and NEXRAD weather radar using the PST on the Federal Aviation Administration (FAA) Obstruction Evaluation/Airport Airspace Analysis website.² This analysis provides a cursory indication whether wind turbines may be visible, that is, within radar line-of-sight to one or more radar sites, and likely to affect radar performance.

The PST LRR analysis accounts for Air Route Surveillance Radar sites and a few select Airport Surveillance Radar sites used for air defense and homeland security.³ The PST does not account for all DoD, Department of Homeland Security (DHS), and/or FAA surface-based or tethered aerostat radar sites. Further, the PST NEXRAD analysis accounts for Weather Surveillance Radar model-88D (WSR-88D) radar sites but does not account for FAA Terminal Doppler Weather Radar sites.⁴

¹ SMUD_Phase4_Turbine Location and Height Data 2.20.18.xlsx.

² See <http://oeaaa.faa.gov>.

³ For LRR, the PST uses a buffered radar line-of-sight analysis at a blade-tip height of 750 feet AGL.

⁴ For NEXRAD, the PST uses a blade-tip height of 160 meters AGL (525 feet AGL).

The PST is helpful for identifying potential impacts to LRR and NEXRAD; however, the results are preliminary, as suggested by the title of the PST, and do not provide an official decision as to whether impacts are acceptable to operations.

It should be noted that the PST NEXRAD analysis does not reflect the wind farm impact zone scheme recently updated by the National Oceanic and Atmospheric Administration (NOAA) WSR-88D Radar Operations Center (ROC). The updated scheme expands the red area, or “No Build Zone”, from three to four kilometers (km) and to areas where wind turbines penetrate the third elevation angle scanned by a WSR-88D.

Based on the location of the existing V47 wind turbines and the proposed V136 and V150 wind turbine layouts, Westslope created a single point and a polygon for analysis purposes.

The PST analysis results for LRR show that the single point and the polygon fall within yellow areas. Yellow indicates that impacts are likely to air defense and homeland security radar. See Figure 1, where the black rotor represents the single point and the black lines represent the polygon, both created by Westslope, the black dots represent the 23 existing V47 wind turbines, the green dots represent the 10 V136 wind turbines, and the red dots represent the nine V150 wind turbines.

Westslope identified the radar sites in the PST LRR results as the Mill Valley Air Route Surveillance Radar model-4 (ARSR-4), McClellan Airport Surveillance Radar model-9 (ASR-9), and the Stockton Airport Surveillance Radar model-11 (ASR-11). In addition to the DoD and DHS using these radar sites for national defense, the FAA uses these radar sites for air traffic control at multiple facilities including Northern California Terminal Radar Approach Control (TRACON), Oakland Air Route Traffic Control Center, and Travis Air Force Base (AFB) Air Traffic Control Tower (ATCT)/Radar Approach Control (RAPCON).

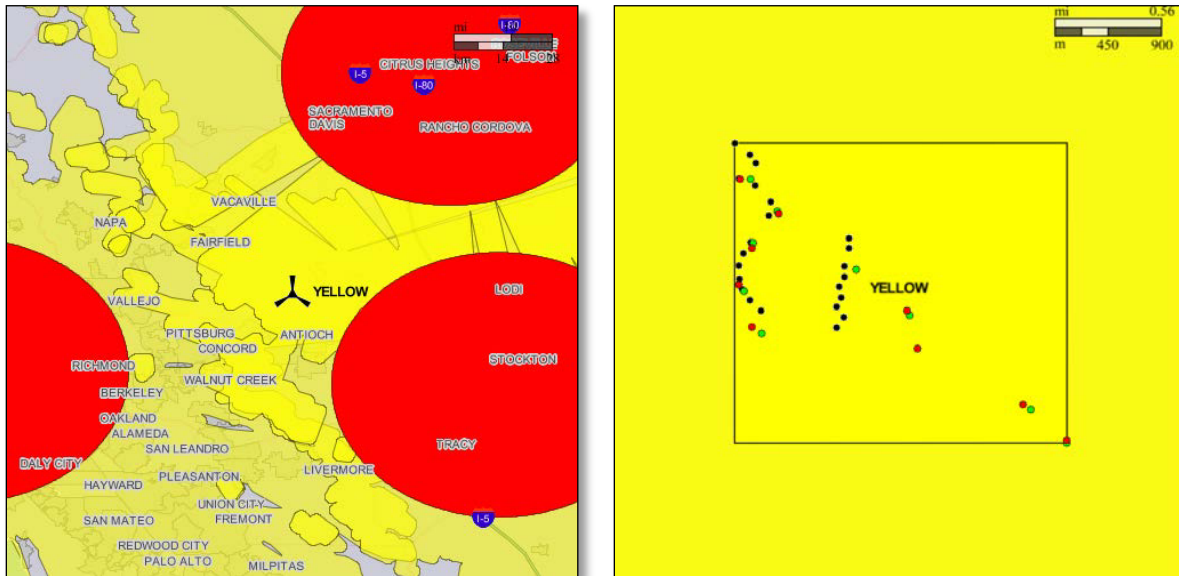


Figure 1 Long Range Radar Results for the Single Point (left) and for the Polygon (right)

For NEXRAD, the PST analysis results show that the single point and the polygon fall within a dark green area, or “Notification Zone”, which indicates that some impacts are possible to WSR-88D operations and that consultation with NOAA is optional. See Figure 2. Westslope identified the radar site in the PST NEXRAD analysis as the Sacramento WSR-88D.

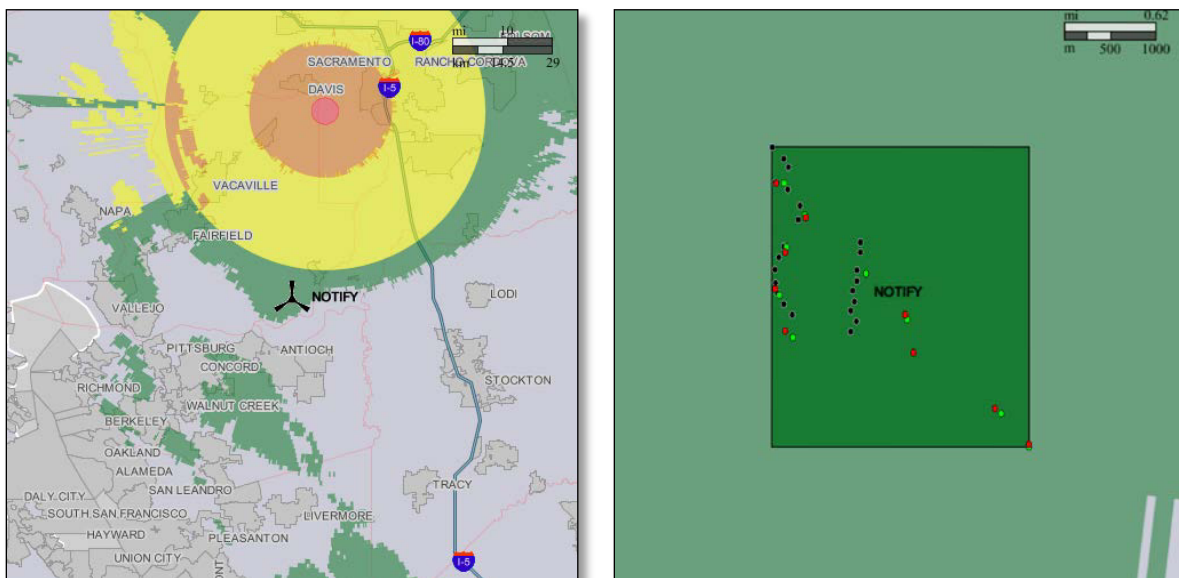


Figure 2 NEXRAD results for the Single Point (left) and for the Polygon (right)

Other Radar Sites

Research performed by Westslope shows four additional radar sites near the Project: the Moffett ASR-9, Oakland ASR-9, Travis AFB Digital Airport Surveillance Radar (DASR), and the San Francisco WSR-88D.

The DoD uses the Travis AFB DASR for air traffic control at Travis AFB ATCT/RAPCON facilities. The FAA uses the Moffett ASR-9 and Oakland ASR-9 for air traffic control at multiple facilities including Oakland TRACON and Northern California TRACON.

Co-Located Secondary Surveillance Radar

A secondary surveillance radar is co-located with each primary surveillance radar. Specifically, an Air Traffic Control Beacon Interrogator model-6 (ATCBI-6) is co-located with the Mill Valley ARSR-4; a Mode S is co-located with the Moffett ASR-9, the Oakland ASR-9, and the McClellan ASR-9; and a Monopulse Secondary Surveillance Radar is co-located with the Stockton ASR-11 and the Travis AFB DASR.

In general, secondary surveillance radar (SSR) are less susceptible to interference from wind turbines than primary surveillance radar.

SSR Only Radar Sites

Westslope also located a SSR only radar site near the Project: the Sacramento ATCBI-6.

Basic RLOS Analysis

Westslope conducted a basic radar line-of-sight analysis using the United States Geological Survey 10-meter National Elevation Dataset (NED). This analysis shows whether the 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL or the nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to one or more radar sites. Westslope also conducted a radar line-of-sight analysis for the existing 23 V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL for comparison purposes.

Westslope performed the radar line-of-sight analysis for the following seven radar sites:

- McClellan ASR-9;
- Mill Valley ARSR-4;
- Moffett ASR-9;
- Oakland ASR-9;
- Sacramento ATCBI-6;
- Stockton ASR-11; and
- Travis AFB DASR.

McClellan ASR-9

The radar line-of-sight analysis results show that 11 of the 23 existing V47 wind turbines at a blade-tip height of 242 feet AGL and 19 of the 23 V47 wind turbines at a blade-tip height of 291 feet AGL are visible to the McClellan ASR-9. See Figure 3. Existing radar effects include unwanted primary radar returns (clutter) resulting in a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the 11 to 19 V47 wind turbines within radar line-of-sight. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the 11 to 19 V47 wind turbines within radar line-of-sight.

Further, the radar line-of-sight analysis results show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the McClellan ASR-9. See Figure 4.

Based on the fact that between 11 and 19 of the 23 existing V47 wind turbines are visible to and interfering with the McClellan ASR-9 and up to 10 proposed wind turbines will be visible to and will interfere with the McClellan ASR-9, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

Mill Valley ARSR-4

The radar line-of-sight analysis results show that two of the 23 existing V47 wind turbines are visible to the Mill Valley ARSR-4 at blade-tip heights of 242 feet AGL and 291 feet AGL. See Figure 5. Existing radar effects include an occasional loss of primary radar target detection and an occasional primary radar false target over and in the immediate vicinity of the two V47 wind turbines within radar line-of-sight.

Further, the radar line-of-sight analysis results show that five of the 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and four of the nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Mill Valley ARSR-4. See Figure 6.

Based on the fact that the two of the existing V47 wind turbines are visible to and interfering with the Mill Valley ARSR-4 and up to five of the proposed wind turbines will be visible to and will interfere with the Mill Valley ARSR-4, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

Moffett ASR-9

The radar line-of-sight analysis results show that wind turbines up to 591 feet AGL will not be visible to the Moffett ASR-9. As a result, Westslope does not expect any radar effects at this height or below.

Oakland ASR-9

The radar line-of-sight analysis results show that wind turbines up to 591 feet AGL will not be visible to the Oakland ASR-9. As a result, Westslope does not expect any radar effects at this height or below.

Sacramento ATCBI-6

The radar line-of-sight analysis results show that all 23 existing V47 wind turbines are visible to the Sacramento ATCBI-6 at blade-tip heights of 242 feet AGL and 291 feet AGL. See Figure 7. The radar line-of-sight analysis results show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento ATCBI-6. See Figure 8.

As noted above, secondary surveillance radar, such as the ATCBI-6, are less susceptible to interference from wind turbines. As such, Westslope does not expect any effects from the proposed V136 or V150 wind turbines to the Sacramento ATCBI-6.

Stockton ASR-11

The radar line-of-sight analysis results show that all 23 existing V47 wind turbines are visible to the Stockton ASR-11 at blade-tip heights of 242 feet AGL and 291 feet AGL. See Figure 9. Existing radar

effects include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the V47 wind turbines. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the existing V47 wind turbines.

Further, the radar line-of-sight analysis results show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Stockton ASR-11. See Figure 10.

Based on the fact that all 23 existing V47 wind turbines are visible to and interfering with the Stockton ASR-11 and up to 10 proposed wind turbines will be visible to and will interfere with the Stockton ASR-11, Westslope expects a decrease to the existing radar effects with the V136 or V150 wind turbines.

Travis AFB DASR

The radar line-of-sight analysis results show that all 23 existing V47 wind turbines are visible to the Travis AFB DASR at blade-tip heights of 242 feet AGL and 291 feet AGL. See Figure 11. Existing radar effects include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the V47 wind turbines. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the existing V47 wind turbines.

Further, the radar line-of-sight analysis results show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Travis AFB DASR. See Figure 12.

Based on the fact that all 23 existing V47 wind turbines are visible to and interfering with the Travis AFB DASR and up to 10 proposed wind turbines will be visible to and will interfere with the Travis AFB DASR, Westslope expects a decrease to the existing radar effects with the V136 or V150 wind turbines.

NEXRAD Weather Radar Screening Analysis

The PST NEXRAD analysis does not reflect the wind farm impact zone scheme recently updated by the NOAA WSR-88D ROC. The updated scheme expands the red area, or “No Build Zone”, from three to four km and to areas where wind turbines penetrate the third elevation angle scanned by a WSR-88D.

Westslope conducted a NEXRAD weather radar screening analysis using the 10-meter NED. This analysis shows whether wind turbines at blade-tip heights of 493 feet AGL and 591 feet AGL will be within radar line-of-sight to one or more WSR-88D radar sites and incorporates the updated wind farm impact zone scheme. Westslope also conducted a NEXRAD weather radar screening analysis for the existing 23 V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL for comparison purposes.

Westslope performed the NEXRAD weather radar screening analysis for the following two radar sites:

- Sacramento WSR-88D; and
- San Francisco WSR-88D.

Sacramento WSR-88D

Westslope’s NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to the Sacramento WSR-88D. See Figure 13. Although all 23 V47 wind turbines are within radar line-of-sight, the screening analysis results show that these wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL fall within a green area. A green area, or “No Impact Zone”, indicates that impacts are not likely to WSR-88D operations. See Figures 14 and 15.

As such, Westslope assumes there are no existing impacts to Sacramento WSR-88D operations as a result of the existing V47 wind turbines.

The NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento WSR-88D. See Figure 16. The screening analysis results also show that at a blade-tip height of 493 feet AGL, seven of the 10 proposed V136 wind turbines fall within a dark green area and the remaining three wind turbines fall within a green area. A dark green area, or “Notification Zone”, indicates that some impacts are possible to WSR-88D operations and that consultation with NOAA is optional. See Figure 17. Further, at a blade-tip height of 591 feet AGL, all nine proposed V150 wind turbines fall within a dark green area. See Figure 18.

Additional radar effects as a result of the proposed V136 or V150 wind turbines will include Doppler contamination and false weather indications over and in the immediate vicinity of the Project due to clutter; however, based on the screening analysis results, impacts to Sacramento WSR-88D operations

are both possible and not likely depending upon the location and blade-tip height of the proposed wind turbines within the Project.

San Francisco WSR-88D

Westslope's NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL or 291 feet AGL are not visible to the San Francisco WSR-88D. The screening analysis results also show that at blade-tip heights of 242 feet AGL and 291 feet AGL, all 23 existing V47 wind turbines fall within a green area. See Figures 19 and 20.

As such, Westslope assumes there are no existing impacts to San Francisco WSR-88D operations as a result of the existing V47 wind turbines.

The NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and the nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will not be visible to the San Francisco WSR-88D. Further, the screening analysis results show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine V150 proposed wind turbines at a blade-tip height of 591 feet AGL fall within a green area. See Figures 21 and 22.

Westslope does not expect impacts to San Francisco WSR-88D operations for the V136 or V150 wind turbines.

CONCLUSIONS

The DoD PST analysis results for the Project indicate the following:

- Impacts to air defense and homeland security radar are likely; and
- Impacts to nearby WSR-88D weather radar are possible.

In total, Westslope identified and conducted a basic radar line-of-sight analysis for the following seven radar sites:

- McClellan ASR-9;
- Mill Valley ARSR-4;
- Moffett ASR-9;
- Oakland ASR-9;
- Sacramento ATCBI-6;
- Stockton ASR-11; and
- Travis AFB DASR.

The basic radar line-of-sight analyses conducted by Westslope show the following:

- For the McClellan ASR-9, between 11 and 19 of the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to and interfering with this radar site. All 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.
- For the Mill Valley ARSR-4, two of the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to and interfering with this radar site. Five of the 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and four of the nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar.
- For the Sacramento ATCBI-6, all 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to this radar site. All 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to this radar site; however, Westslope does not expect any effects from the proposed V136 or V150 wind turbines.
- For the Stockton ASR-11 and the Travis AFB DASR, all 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to and interfering with this radar site. All 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.

- For the Moffett ASR-9 and Oakland ASR-9, wind turbines up to 591 feet AGL in the Project will not be visible to these radar sites. As a result, Westslope does not expect any radar effects at this height or below.

For the McClellan ASR-9, based on the fact that between 11 and 19 of the 23 existing V47 wind turbines are visible to and interfering with this radar site and up to 10 proposed wind turbines will be visible to and will interfere with this radar site, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

For the Mill Valley ARSR-4, based on the fact that the two of the existing V47 wind turbines are visible to and interfering with this radar site and up to five of the proposed wind turbines will be visible to and will interfere with this radar site, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

For the Stockton ASR-11 and the Travis AFB DASR, based on the fact that all 23 existing V47 wind turbines are visible to and interfering with these radar sites and up to 10 proposed wind turbines will be visible to and will interfere with these radar sites, Westslope expects a decrease to the existing radar effects with the V136 or V150 wind turbines.

Because wind turbines will be visible to the McClellan ASR-9, Mill Valley ARSR-4, Stockton ASR-11, and Travis AFB DASR, Westslope expects that the FAA and DoD will initially object to the proposed V136 or V150 wind turbines based on electromagnetic interference to air navigation facilities. As such, Westslope expects that the FAA will issue Notices of Presumed Hazard for the Project. The FAA and DoD will likely require further study to determine whether the radar effects are acceptable to operations or not. The DoD may also setup a Mitigation Response Team to conduct further study. Although possible, Westslope does not expect that the DHS will object to the proposed V136 or V150 wind turbines.

It is important to note that radar effects do not always translate into operational impacts.

Westslope's NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are visible to the Sacramento WSR-88D and that the existing V47 wind turbines fall within a No Impact Zone. As such, Westslope assumes there are no existing impacts to Sacramento WSR-88D operations as a result of the existing V47 wind turbines.

The NEXRAD weather radar screening analysis results also show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento WSR-88D. Further, the screening analysis results show that at a blade-tip height of 493 feet AGL, seven of the 10 proposed V136 wind turbines fall within a Notification Zone and the remaining three V136 wind turbines fall within a No Impact Zone. At a blade-tip height of 591 feet AGL, all nine proposed V150 wind turbines fall within a Notification Zone. Additional radar effects as a result of the proposed V136 or V150 wind turbines will include Doppler

contamination and false weather indications over and in the immediate vicinity of the Project due to clutter; however, based on the screening analysis results, impacts to Sacramento WSR-88D operations are both possible and not likely depending upon the location and blade-tip height of the proposed wind turbines within the Project.

Westslope's NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 23 existing V47 wind turbines at blade-tip heights of 242 feet AGL and 291 feet AGL are not visible to the San Francisco WSR-88D and that the existing V47 wind turbines fall within a No Impact Zone. As such, Westslope assumes there are no existing radar effects or impacts to San Francisco WSR-88D operations as a result of the existing V47 wind turbines.

The NEXRAD weather radar screening analysis also shows that the 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and the nine proposed V150 wind turbines will not be visible to the San Francisco WSR-88D. The screening analysis results also show that all 10 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all nine proposed V150 proposed wind turbines at a blade-tip height of 591 feet AGL fall within a No Impact Zone. As such, Westslope does not expect any radar effects or impacts to San Francisco WSR-88D operations for the V136 or V150 wind turbines.

Westslope recommends that the Project details be submitted to the NOAA or the National Telecommunications Information Administration (NTIA) for a detailed review. The NTIA is essentially a clearinghouse for other federal agencies including NOAA.

If you have any questions regarding this analysis, please contact Geoff Blackman at (405) 816-2604 or via email at gblackman@westslopeconsulting.com.

SOLANO PHASE 4 WIND PROJECT
BASIC RADAR LINE-OF-SIGHT STUDY
APRIL 16, 2018

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INTRODUCTION

The proposed Solano Phase 4 Wind Project (Project) will consist of 12 Vestas V136 (V136) wind turbines at a blade-tip height of 493 feet above ground level (AGL) or 10 Vestas V150 (V150) wind turbines at a blade-tip height of 591 feet AGL.¹ Development of this Project will include the removal of the remaining legacy wind turbines in the Solano Wind Resource Area. Specifically, the 59 existing Kenetech 56/100-kilowatt (Kenetech) wind turbines at a blade-tip height of 107 feet AGL.

Westslope Consulting, LLC (Westslope) prepared this report to determine whether the proposed V136 or V150 wind turbines will have an effect on nearby radar sites. Westslope conducted a radar line-of-sight (RLOS) analysis or Next Generation Radar (NEXRAD) weather radar screening analysis as appropriate for each of the proposed wind turbine heights and included analyses of the existing Kenetech wind turbines for comparison purposes.

This report provides the results of a Basic Radar Line-of-Sight Study conducted by Westslope, which includes the following:

- An initial analysis using the Department of Defense (DoD) Preliminary Screening Tool (PST);
- Research into other radar sites near the Project;
- A RLOS analysis for each radar site identified by Westslope using wind turbine blade-tip heights of 107 feet AGL, 493 feet AGL, and 591 feet AGL; and
- A NEXRAD weather radar screening analysis using wind turbine blade-tip heights of 107 feet AGL, 493 feet AGL, and 591 feet AGL.

ANALYSIS

Preliminary Screening Tool

Westslope conducted an initial analysis for Long Range Radar (LRR) and NEXRAD weather radar using the PST on the Federal Aviation Administration (FAA) Obstruction Evaluation/Airport Airspace Analysis website.² This analysis provides a cursory indication whether wind turbines may be visible, that is, within radar line-of-sight to one or more radar sites, and likely to affect radar performance.

The PST LRR analysis accounts for Air Route Surveillance Radar sites and a few select Airport Surveillance Radar sites used for air defense and homeland security.³ The PST does not account for all DoD, Department of Homeland Security (DHS), and/or FAA surface-based or tethered aerostat radar sites.

¹ SMUD_Phase4_Turbine Location and Height Data 2.20.18.xlsx.

² See <http://oeaaa.faa.gov>.

³ For LRR, the PST uses a buffered radar line-of-sight analysis at a blade-tip height of 750 feet AGL.

Further, the PST NEXRAD analysis accounts for Weather Surveillance Radar model-88D (WSR-88D) radar sites but does not account for Terminal Doppler Weather Radar sites.⁴

The PST is helpful for identifying potential impacts to LRR and NEXRAD; however, the results are preliminary, as suggested by the title of the PST, and do not provide an official decision as to whether impacts are acceptable to operations.

It should be noted that the PST NEXRAD analysis does not reflect the wind farm impact zone scheme recently updated by the National Oceanic and Atmospheric Administration (NOAA) WSR-88D Radar Operations Center (ROC). The updated scheme expands the red area, or “No Build Zone”, from three to four kilometers (km) and to areas where wind turbines penetrate the third elevation angle scanned by a WSR-88D.

Based on the location of the existing Kenetech wind turbines and the proposed V136 and V150 wind turbine layouts, Westslope created a single point and a polygon for analysis purposes.

The PST analysis results for LRR show that the single point and the polygon fall within yellow areas. Yellow indicates that impacts are likely to air defense and homeland security radar. See Figure 1, where the black rotor represents the single point and the black lines represent the polygon, both created by Westslope, the black dots represent the 59 existing Kenetech wind turbines, the green dots represent the 12 V136 wind turbines, and the red dots represent the 10 V150 wind turbines.

Westslope identified the radar sites in the PST LRR results as the Mill Valley Air Route Surveillance Radar model-4 (ARSR-4), McClellan Airport Surveillance Radar model-9 (ASR-9), and the Stockton Airport Surveillance Radar model-11 (ASR-11). In addition to the DoD and DHS using these radar sites for national defense, the FAA uses these radar sites for air traffic control at multiple facilities including Northern California Terminal Radar Approach Control (TRACON), Oakland Air Route Traffic Control Center, and Travis Air Force Base (AFB) Air Traffic Control Tower (ATCT)/Radar Approach Control (RAPCON).

⁴ For NEXRAD, the PST uses a blade-tip height of 160 meters AGL (525 feet AGL).

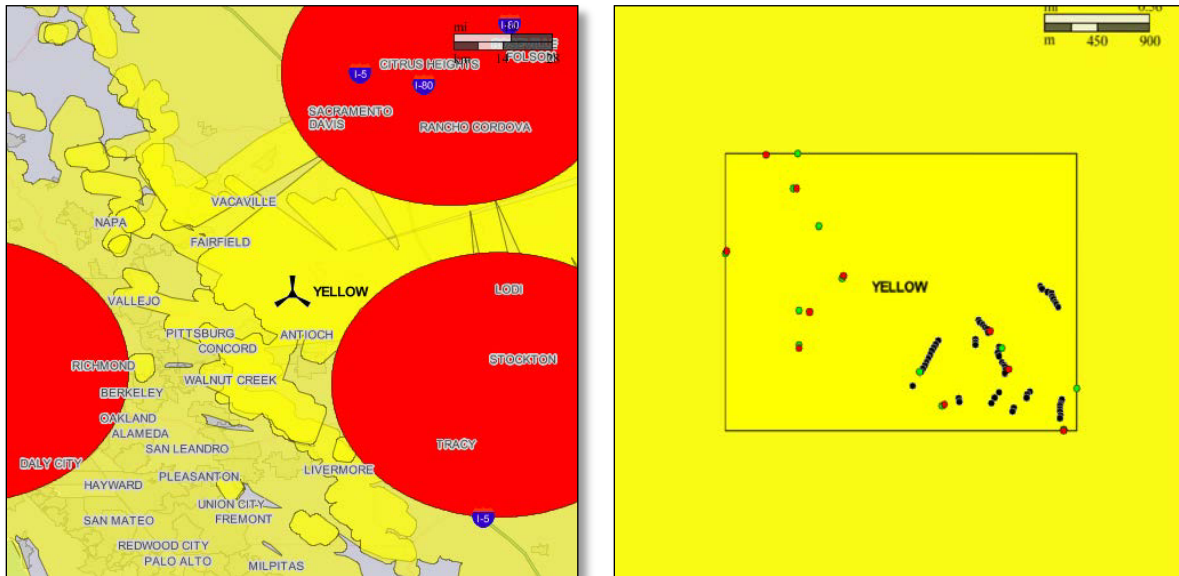


Figure 1 Long Range Radar Results for the Single Point (left) and for the Polygon (right)

For NEXRAD, the PST analysis results show that the single point falls within a dark green area, or “Notification Zone”, which indicates that some impacts are possible to WSR-88D operations and that consultation with NOAA is optional. The polygon falls with a dark green area and green areas. A green area, or “No Impact Zone”, indicates that impacts are not likely to WSR-88D operations. See Figure 2. Westslope identified the radar site in the PST NEXRAD analysis as the Sacramento WSR-88D.

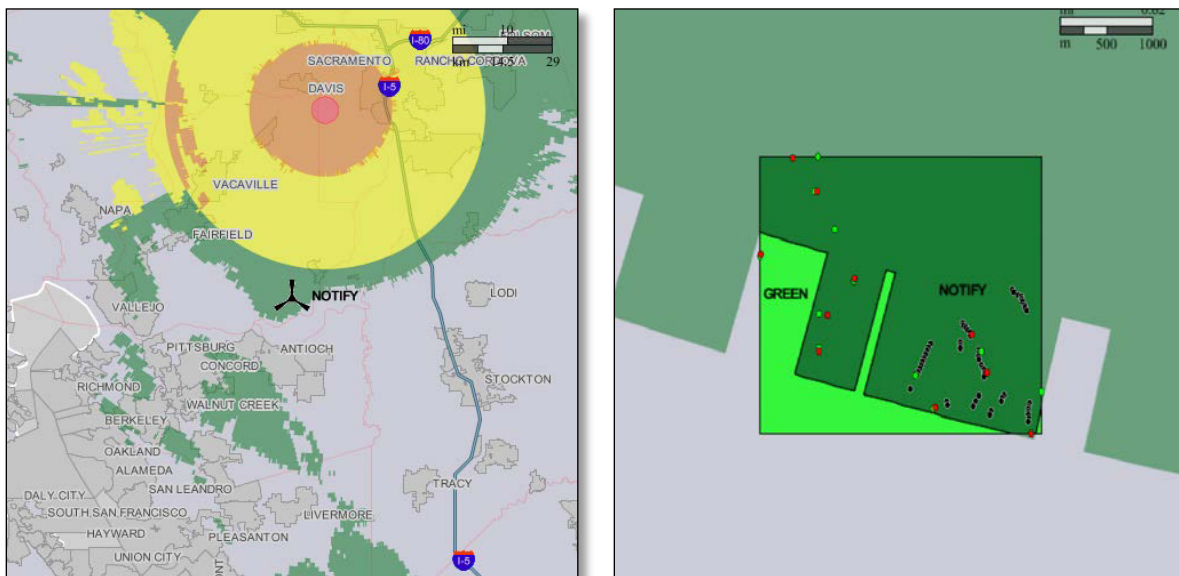


Figure 2 NEXRAD results for the Single Point (left) and for the Polygon (right)

Other Radar Sites

Research performed by Westslope shows four additional radar sites near the Project: the Moffett ASR-9, Oakland ASR-9, Travis AFB Digital Airport Surveillance Radar (DASR), and the San Francisco WSR-88D.

The DoD uses the Travis AFB DASR for air traffic control at Travis AFB ATCT/RAPCON facilities. The FAA uses the Moffett ASR-9 and Oakland ASR-9 for air traffic control at multiple facilities including Oakland TRACON and Northern California TRACON.

Co-Located Secondary Surveillance Radar

A secondary surveillance radar is co-located with each primary surveillance radar. Specifically, an Air Traffic Control Beacon Interrogator model-6 (ATCBI-6) is co-located with Mill Valley ARSR-4; a Mode S is co-located with the Moffett ASR-9, the Oakland ASR-9, and the McClellan ASR-9; and a Monopulse Secondary Surveillance Radar is co-located with the Stockton ASR-11 and the Travis AFB DASR.

In general, secondary surveillance radar (SSR) are less susceptible to interference from wind turbines than primary surveillance radar.

SSR Only Radar Sites

Westslope also located a SSR only radar site near the Project: the Sacramento ATCBI-6.

Basic RLOS Analysis

Westslope conducted a basic radar line-of-sight analysis using the United States Geological Survey 10-meter National Elevation Dataset (NED). This analysis shows whether the 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL or the 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to one or more radar sites. Westslope also conducted a radar line-of-sight analysis for the existing Kenetech wind turbines at a blade-tip height of 107 feet AGL for comparison purposes.

Westslope performed the radar line-of-sight analysis for the following seven radar sites:

- McClellan ASR-9;
- Mill Valley ARSR-4;
- Moffett ASR-9;
- Oakland ASR-9;
- Sacramento ATCBI-6;
- Stockton ASR-11; and
- Travis AFB DASR.

McClellan ASR-9

The radar line-of-sight analysis results show that the 59 existing Kenetech wind turbines are not visible to the McClellan ASR-9 at a blade-tip height of 107 feet AGL. As such, Westslope assumes there are no existing radar effects to the McClellan ASR-9 as a result of these legacy wind turbines.

The radar line-of-sight analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the McClellan ASR-9. See Figure 3. Additional radar effects will include unwanted primary radar returns (clutter) resulting in a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the Project. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the Project.

Mill Valley ARSR-4

The radar line-of-sight analysis results show that all 59 existing Kenetech wind turbines are visible to the Mill Valley ARSR-4 at a blade-tip height of 107 feet AGL. See Figure 4. Existing radar effects include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the existing Kenetech wind turbines due to clutter.

Further, the radar line-of-sight analysis results show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Mill Valley ARSR-4. See Figure 5.

Based on the fact that the existing Kenetech wind turbines are visible to and interfering with the Mill Valley ARSR-4, the proposed V136 or V150 wind turbines will be visible to and will interfere with the Mill Valley ARSR-4, and the development of the Project will include the removal of the existing Kenetech wind turbines, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

Moffett ASR-9

The radar line-of-sight analysis results show that wind turbines up to 591 feet AGL will not be visible to the Moffett ASR-9. As a result, Westslope does not expect any radar effects at this height or below.

Oakland ASR-9

The radar line-of-sight analysis results show that wind turbines up to 591 feet AGL will not be visible to the Oakland ASR-9. As a result, Westslope does not expect any radar effects at this height or below.

Sacramento ATCBI-6

The radar line-of-sight analysis results show that the 59 existing Kenetech wind turbines are not visible to the Sacramento ATCBI-6 at a blade-tip height of 107 feet AGL. The radar line-of-sight analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento ATCBI-6. See Figure 6.

As noted above, secondary surveillance radar, such as the ATCBI-6, are less susceptible to interference from wind turbines. As such, Westslope does not expect any effects from the proposed V136 or V150 wind turbines to the Sacramento ATCBI-6.

Stockton ASR-11

The radar line-of-sight analysis results show that 51 of the 59 existing Kenetech wind turbines are visible to the Stockton ASR-11 at a blade-tip height of 107 feet AGL. See Figure 7. Existing radar effects include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the 51 Kenetech wind turbines within radar line-of-sight. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the 51 Kenetech wind turbines within radar line-of-sight.

Further, the radar line-of-sight analysis results show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Stockton ASR-11. See Figure 8.

Based on the fact that 51 of the 59 existing Kenetech wind turbines are visible to and interfering with the Stockton ASR-11, the proposed V136 or V150 wind turbines will be visible to and will interfere with the Stockton ASR-11, and the development of the Project will include the removal of the existing Kenetech wind turbines, Westslope does not expect that the V136 or V150 wind turbines will result in a material difference to the existing radar effects.

Travis AFB DASR

The radar line-of-sight analysis results show that the 59 existing Kenetech wind turbines are not visible to the Travis AFB DASR at a blade-tip height of 107 feet AGL. As such, Westslope assumes there are no existing radar effects to the Travis AFB DASR as a result of these legacy wind turbines. A qualitative review of radar data collected under Cooperative Research and Development Agreement confirms that the 59 Kenetech wind turbines do not interfere with the Travis AFB DASR.⁵

The radar line-of-sight analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Travis AFB DASR. See Figure 9. Additional radar effects will include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the Project due to clutter. Other possible radar effects due to clutter include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the Project.

⁵ See Westslope Solano Phase 4 23 February 2017.pptx

NEXRAD Weather Radar Screening Analysis

The PST NEXRAD analysis does not reflect the wind farm impact zone scheme recently updated by the NOAA WSR-88D ROC. The updated scheme expands the red area, or “No Build Zone”, from three to four km and to areas where wind turbines penetrate the third elevation angle scanned by a WSR-88D.

Westslope conducted a NEXRAD weather radar screening analysis using the 10-meter NED. This analysis shows whether wind turbines at blade-tip heights of 493 feet AGL and 591 feet AGL will be within radar line-of-sight to one or more WSR-88D radar sites and incorporates the updated wind farm impact zone scheme. Westslope also conducted a NEXRAD weather radar screening analysis for the existing Kenetech wind turbines at a blade-tip height of 107 feet AGL for comparison purposes.

Westslope performed the NEXRAD weather radar screening analysis for the following two radar sites:

- Sacramento WSR-88D; and
- San Francisco WSR-88D.

Sacramento WSR-88D

Westslope’s NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that the 59 existing Kenetech wind turbines at a blade-tip height of 107 feet AGL are visible to the Sacramento WSR-88D. See Figure 10. Although all 59 existing Kenetech wind turbines are within radar line-of-sight, the screening analysis results show that these wind turbines fall within a green area. A green area, or “No Impact Zone”, indicates that impacts are not likely to WSR-88D operations. See Figure 11.

As such, Westslope assumes there are no existing impacts to the Sacramento WSR-88D operations as a result of these legacy wind turbines.

The NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento WSR-88D. See Figure 12. The screening analysis results also show that at a blade-tip height of 493 feet AGL, two of the 12 proposed V136 wind turbines fall within a dark green area and the remaining 10 V136 wind turbines fall within a green area. A dark green area, or “Notification Zone”, indicates that some impacts are possible to WSR-88D operations and that consultation with NOAA is optional. See Figure 13. Further, at a blade-tip height of 591 feet AGL, seven of the 10 proposed V150 wind turbines fall within a dark green area and the remaining three V150 wind turbines fall within a green area. See Figure 14.

Additional radar effects as a result of the proposed V136 or V150 wind turbines will include Doppler contamination and false weather indications over and in the immediate vicinity of the Project due to clutter; however, based on the screening analysis results, impacts to Sacramento WSR-88D operations

are both possible and not likely depending upon the location and blade-tip height of the proposed wind turbines within the Project.

San Francisco WSR-88D

Westslope's NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 59 existing Kenetech wind turbines at a blade-tip height of 107 feet AGL are not visible to the San Francisco WSR-88D. The screening analysis results also show that the 59 existing Kenetech wind turbines at a blade-tip height of 107 feet AGL fall within a green area. See Figure 15.

As such, Westslope assumes there are no existing radar effects or impacts to San Francisco WSR-88D operations as a result of these legacy wind turbines.

The NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL will not be visible to the San Francisco WSR-88D. At a blade-tip height of 591 feet AGL, two of the 10 proposed V150 wind turbines will be visible to the San Francisco WSR-88D. See Figure 16. The screening analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 proposed wind turbines at a blade-tip height of 591 feet AGL fall within a green area. See Figures 17 and 18.

For the V136 wind turbines, Westslope does not expect any radar effects or impacts to San Francisco WSR-88D operations.

For two of the 10 proposed V150 wind turbines, additional radar effects will include Doppler contamination and false weather indications over and in the immediate vicinity of these two V150 wind turbines due to clutter; however, impacts to WSR-88D operations are not likely based on the WSR-88D ROC wind farm impact zone scheme.

CONCLUSIONS

The DoD PST analysis results for the Project indicate the following:

- Impacts to air defense and homeland security radar are likely; and
- Impacts to nearby WSR-88D weather radar are possible.

In total, Westslope identified and conducted a basic radar line-of-sight analysis for the following seven radar sites:

- McClellan ASR-9;
- Mill Valley ARSR-4;
- Moffett ASR-9;
- Oakland ASR-9;
- Sacramento ATCBI-6;
- Stockton ASR-11; and
- Travis AFB DASR.

The basic radar line-of-sight analyses conducted by Westslope show the following:

- For the McClellan ASR-9, the 59 existing Kenetech wind turbines are not visible to and are not interfering with this radar site. All 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.
- For the Mill Valley ARSR-4, all 59 existing Kenetech wind turbines are visible to and are interfering with this radar site. All 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.
- For the Sacramento ATCBI-6, the 59 existing Kenetech wind turbines are not visible to this radar site. All 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to this radar site; however, Westslope does not expect any effects from the proposed V136 or V150 wind turbines.
- For the Stockton ASR-11, 51 of the 59 existing Kenetech wind turbines are visible to and are interfering with this radar site. All 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.
- For the Travis AFB DASR, the 59 existing Kenetech wind turbines are not visible to this radar site. All 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to and will interfere with this radar site.

- For the Moffett ASR-9 and the Oakland ASR-9, the proposed V136 and V150 wind turbines will not be visible to these radar sites. As a result, Westslope does not expect any radar effects to these radar sites.

For the Mill Valley ARSR-4 and the Stockton ASR-11, based on the fact that the existing Kenetech wind turbines are visible to and interfering with these radar sites, the proposed V136 or V150 wind turbines will be visible to and will interfere with these radar sites, and the development of the Project will include the removal of the existing Kenetech wind turbines, Westslope does not expect that the proposed V136 or V150 wind turbines will result in a material difference to the existing radar effects to these radar sites.

For the McClellan ASR-9 and the Travis AFB DASR, without mitigation, additional radar effects as a result of the proposed V136 or V150 wind turbines will include unwanted primary radar returns (clutter) resulting in a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the Project. Other possible radar effects include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the Project. It is possible that mitigation techniques presently in use for the other 530 existing wind turbines in the Solano Wind Resource Area may be sufficient to address any concerns of the FAA or DoD.

Because wind turbines will be visible to the McClellan ASR-9, Mill Valley ARSR-4, Stockton ASR-11, and Travis AFB DASR, Westslope expects that the FAA and DoD will initially object to the proposed V136 or V150 wind turbines based on electromagnetic interference to air navigation facilities. As such, Westslope expects that the FAA will issue Notices of Presumed Hazard for the Project. The FAA and DoD will likely require further study to determine whether the radar effects are acceptable to operations or not. The DoD may also setup a Mitigation Response Team to conduct further study. Although possible, Westslope does not expect that the DHS will object to the proposed V136 or V150 wind turbines.

It is important to note that radar effects do not always translate into operational impacts.

Westslope's NEXRAD weather radar screening analysis for the Sacramento WSR-88D shows that the 59 existing Kenetech wind turbines at a blade-tip height of 107 feet AGL are visible to the Sacramento WSR-88D and that the existing Kenetech wind turbines fall within a No Impact Zone. As such, Westslope assumes there are no existing impacts to Sacramento WSR-88D operations as a result of these legacy wind turbines.

The NEXRAD weather radar screening analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 wind turbines at a blade-tip height of 591 feet AGL will be visible to the Sacramento WSR-88D. Further, the screening analysis results show that at a blade-tip height of 493 feet AGL, two of the 12 proposed V136 wind turbines fall within a Notification Zone and the remaining 10 V136 wind turbines fall within a No Impact Zone. At a blade-tip height of 591 feet AGL, seven of the 10 proposed V150 wind turbines fall within a Notification Zone and the remaining

three V150 wind turbines fall within a No Impact Zone. Additional radar effects as a result of the proposed V136 or V150 wind turbines will include Doppler contamination and false weather indications over and in the immediate vicinity of the Project due to clutter; however, based on the screening analysis results, impacts to Sacramento WSR-88D operations are both possible and not likely depending upon the location and blade-tip height of the proposed wind turbines within the Project.

Westslope's NEXRAD weather radar screening analysis for the San Francisco WSR-88D shows that the 59 existing Kenetech wind turbines at a blade-tip height of 107 feet AGL are not visible to the San Francisco WSR-88D and that the existing Kenetech wind turbines fall within a No Impact Zone. As such, Westslope assumes there are no existing radar effects or impacts to San Francisco WSR-88D operations as a result of these legacy wind turbines.

The NEXRAD weather radar screening analysis also shows that the 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL will not be visible to the San Francisco WSR-88D. At a blade-tip height of 591 feet AGL, two of the 10 proposed V150 wind turbines will be visible to the San Francisco WSR-88D. The screening analysis results also show that all 12 proposed V136 wind turbines at a blade-tip height of 493 feet AGL and all 10 proposed V150 proposed wind turbines at a blade-tip height of 591 feet AGL fall within No Impact Zone. For the V136 wind turbines, Westslope does not expect any radar effects or impacts to San Francisco WSR-88D operations. For two of the 10 proposed V150 wind turbines, additional radar effects will include Doppler contamination and false weather indications over and in the immediate vicinity of these two V150 wind turbines due to clutter; however, impacts to WSR-88D operations are not likely based on the WSR-88D ROC wind farm impact zone scheme.

Westslope recommends that the Project details be submitted to the NOAA or the National Telecommunications Information Administration (NTIA) for a detailed review. The NTIA is essentially a clearinghouse for other federal agencies including NOAA.

If you have any questions regarding this analysis, please contact Geoff Blackman at (405) 816-2604 or via email at gblackman@westslopeconsulting.com.

Appendix B

**FAA DNH Forms, DNH Extensions,
Associated Correspondence**

**Letter from Colonel Corey A. Simmons, USAF,
Commander**

January 11, 2021



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 60TH AIR MOBILITY WING (AMC)**

11 January 2021

MEMORANDUM FOR SAF/IEI
AMC/A3A

FROM: 60 AMW/CC
400 Brennan Circle
Travis AFB CA 94535-5000

SUBJECT: 60 AMW Solano 4 Wind Project Operational Risk Assessment

1. We have carefully evaluated Sacramento Municipal Utility District's proposed Solano 4 Wind Project located within the Wind Resource Area located southeast of Travis AFB. My team determined the following during their evaluation of the project:

- Solano 4 does not meet the wind turbine facility requirements outlined in the local Airport Land Use Commission *Travis Air Force Base Land Use Compatibility Plan* adopted in October 2015.
- Air Traffic Control radar interference studies conducted by the Air Force Flight Standards Agency and the North American Aerospace Defense Command indicate the proposed replacement of 82 aging wind turbines with 19 newer turbines will not improve our Digital Airport Surveillance Radar's probability of detection capability within the Wind Resource Area.
- As proposed, Solano 4 Wind Project should have minimal negative impact on Travis AFB operations.
- Any changes to the Solano 4 Wind Project will require a new operational risk analysis.

2. Thank you for your collaboration with Travis AFB on this project. Please contact Mr. Scott McLaughlin, 60th Operations Group, at (707) 424-1067, or by e-mail at scott.mclaughlin.1@us.af.mil, if you have any questions regarding this risk assessment.

COREY A. SIMMONS, Colonel, USAF
Commander

**Letter from Steven Sample, Executive Director,
Military Aviation and Installation Assurance Siting
Clearinghouse, Department of Defense**

February 9, 2021



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

SUSTAINMENT

February 9, 2021

Ms. Amanda Beck
Solano 4
6201 S St., MS MD-2
Sacramento, CA 95817

Reference: Federal Aviation Administration (FAA) Study Number: 2018-WTW-13388-OE and
18 associated structures

Dear Ms. Beck,

Thank you for your participation in the Mitigation Response Team (MRT) to assess and overcome military impacts from your proposed Solano 4 wind farm project in Rio Vista, California. In a letter dated May 11th, 2020, the Department of Defense (DoD) described the potential impacts to military operations for the project.

As a result of discussions between Sacramento Municipal Utility District and the U.S. Air Force, the construction of the Solano 4 wind project, submitted to the Federal Aviation Administration on 04/17/2020, will not present an adverse impact to military operations.

Our response to the FAA included a notification that further expansion beyond the current project area may present an adverse impact. We encourage you to engage DoD prior to any proposed expansion.

If you have any further concerns, please contact Mr. Michael Lignowski, Military Aviation and Installation Assurance Siting Clearinghouse, at 571-372-6853.

Sincerely,

A handwritten signature in blue ink, reading "Steven J. Sample", is located below the "Sincerely," text.

Steven J. Sample
Executive Director
Military Aviation and Installation
Assurance Siting Clearinghouse

FAA Determinations



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13388-OE

Issued Date: 12/04/2018

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** PUBLIC NOTICE ****

The Federal Aviation Administration is conducting an aeronautical study concerning the following:

Structure:	Wind Turbine P1R1
Location:	Rio Vista, CA
Latitude:	38-07-54.16N NAD 83
Longitude:	121-46-31.47W
Heights:	208 feet site elevation (SE) 591 feet above ground level (AGL) 799 feet above mean sea level (AMSL)

The structure above exceeds obstruction standards. To determine its effect upon the safe and efficient use of navigable airspace by aircraft and on the operation of air navigation facilities, the FAA is conducting an aeronautical study under the provisions of 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77.

**** SEE REVERSE SIDE FOR ADDITIONAL INFORMATION ****

In the study, consideration will be given to all facts relevant to the effect of the structure on existing and planned airspace use, air navigation facilities, airports, aircraft operations, procedures and minimum flight altitudes, and the air traffic control system.

Interested persons are invited to participate in the aeronautical study by submitting comments to the above FAA address or through the electronic notification system. To be eligible for consideration, comments must be relevant to the effect the structure would have on aviation, must provide sufficient detail to permit a clear understanding, must contain the aeronautical study number printed in the upper right hand corner of this notice, and must be received on or before 01/10/2019.

This notice may be reproduced and circulated by any interested person. Airport managers are encouraged to post this notice.

If we can be of further assistance, please contact our office at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13388-OE.

Signature Control No: 387140385-391516697

(CIR -WT)

Steve Phillips

Specialist

Attachment(s)

Part 77

Additional Information

Map(s)

Additional Information for ASN 2018-WTW-13388-OE

Proposal: To construct and/or operate a(n) Wind Turbine to a height of 591 feet above ground level, 799 feet above mean sea level.

Location: The structure will be located * nautical miles * of * Airport reference point.

Part 77 Obstruction Standard(s) Exceeded:

Preliminary FAA study indicates that the above mentioned structure would:
not exceed traffic pattern airspace

Abbreviations:

AGL, Above Ground Level

AMSL, Above Mean Sea Level

ASN, Aeronautical Study Number

CFR, Code of Federal Regulations

NM, Nautical Mile

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. In order to facilitate the public comment process, all 19 studies are being circularized under ASN 2018-WTW-13388-OE.

All comments received from this circularization will be considered in completing the separate determinations for each study. The ASNs with coordinates, AGL heights, and AMSL heights are as follows:

ASN	/	Latitude	/	Longitude	/	AGL / AMSL
2018-WTW-13388-OE	/	38-07-54.16N	/	121-46-31.47W	/	591 / 799
2018-WTW-13389-OE	/	38-07-44.90N	/	121-46-20.90W	/	591 / 774
2018-WTW-13390-OE	/	38-07-35.49N	/	121-46-28.29W	/	591 / 780
2018-WTW-13391-OE	/	38-07-25.84N	/	121-46-31.86W	/	591 / 778
2018-WTW-13392-OE	/	38-07-14.14N	/	121-46-28.35W	/	591 / 707
2018-WTW-13393-OE	/	38-07-18.49N	/	121-45-46.46W	/	591 / 757
2018-WTW-13394-OE	/	38-07-08.51N	/	121-45-43.44W	/	591 / 748
2018-WTW-13395-OE	/	38-06-53.36N	/	121-45-15.19W	/	591 / 706
2018-WTW-13396-OE	/	38-06-43.69N	/	121-45-03.40W	/	591 / 645
2018-WTW-13397-OE	/	38-05-33.53N	/	121-49-52.57W	/	591 / 833
2018-WTW-13398-OE	/	38-05-08.34N	/	121-50-03.54W	/	591 / 764
2018-WTW-13399-OE	/	38-05-24.68N	/	121-49-44.45W	/	591 / 805
2018-WTW-13400-OE	/	38-05-02.29N	/	121-49-31.33W	/	591 / 799
2018-WTW-13401-OE	/	38-04-53.15N	/	121-49-40.77W	/	591 / 694
2018-WTW-13402-OE	/	38-04-43.66N	/	121-49-43.80W	/	591 / 707
2018-WTW-13403-OE	/	38-04-29.29N	/	121-49-03.88W	/	591 / 771
2018-WTW-13404-OE	/	38-04-48.12N	/	121-48-51.19W	/	591 / 802
2018-WTW-13405-OE	/	38-04-38.20N	/	121-48-46.20W	/	591 / 807
2018-WTW-13406-OE	/	38-04-22.44N	/	121-48-30.99W	/	591 / 739

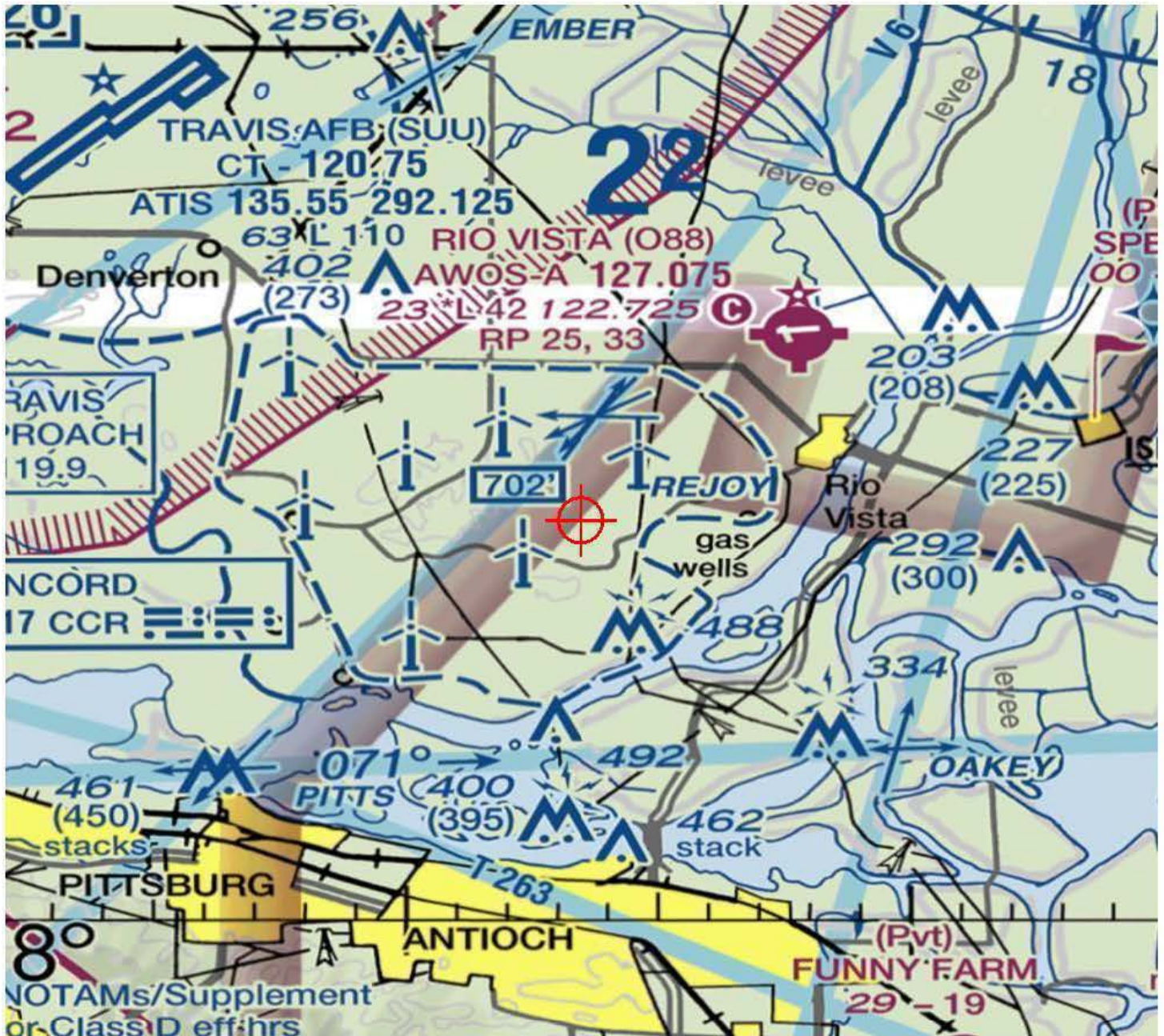
These would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet





Federal Aviation
Administration

« OE/AAA

Project Submission Success
Project Name: SACRA-000491271-18

Project SACRA-000491271-18 has been submitted successfully to the FAA.

Your filing is assigned Aeronautical Study Number (ASN):

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13392-OE
2018-WTW-13393-OE
2018-WTW-13394-OE
2018-WTW-13395-OE
2018-WTW-13396-OE
2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13401-OE
2018-WTW-13402-OE
2018-WTW-13403-OE
2018-WTW-13404-OE
2018-WTW-13405-OE
2018-WTW-13406-OE

Please refer to the assigned ASN on all future inquiries regarding this filing.

Please return to the system at a later date for status updates.

It is the responsibility of each e-filer to exercise due diligence to determine if coordination of the proposed construction or alteration is necessary with their state aviation department. Please use the link below to contact your state aviation department to determine their requirements:

[State Aviation Contacts](#)

To ensure e-mail notifications are delivered to your inbox please add noreply@faa.gov to your address book. Notifications sent from this address are system generated FAA e-mails and replies to this address will NOT be read or forwarded for review. Each system generated e-mail will contain specific FAA contact information in the text of the message.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13388-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1R1
Location:	Rio Vista, CA
Latitude:	38-07-54.16N NAD 83
Longitude:	121-46-31.47W
Heights:	208 feet site elevation (SE) 591 feet above ground level (AGL) 799 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13388-OE.

Signature Control No: 387140385-395150226

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

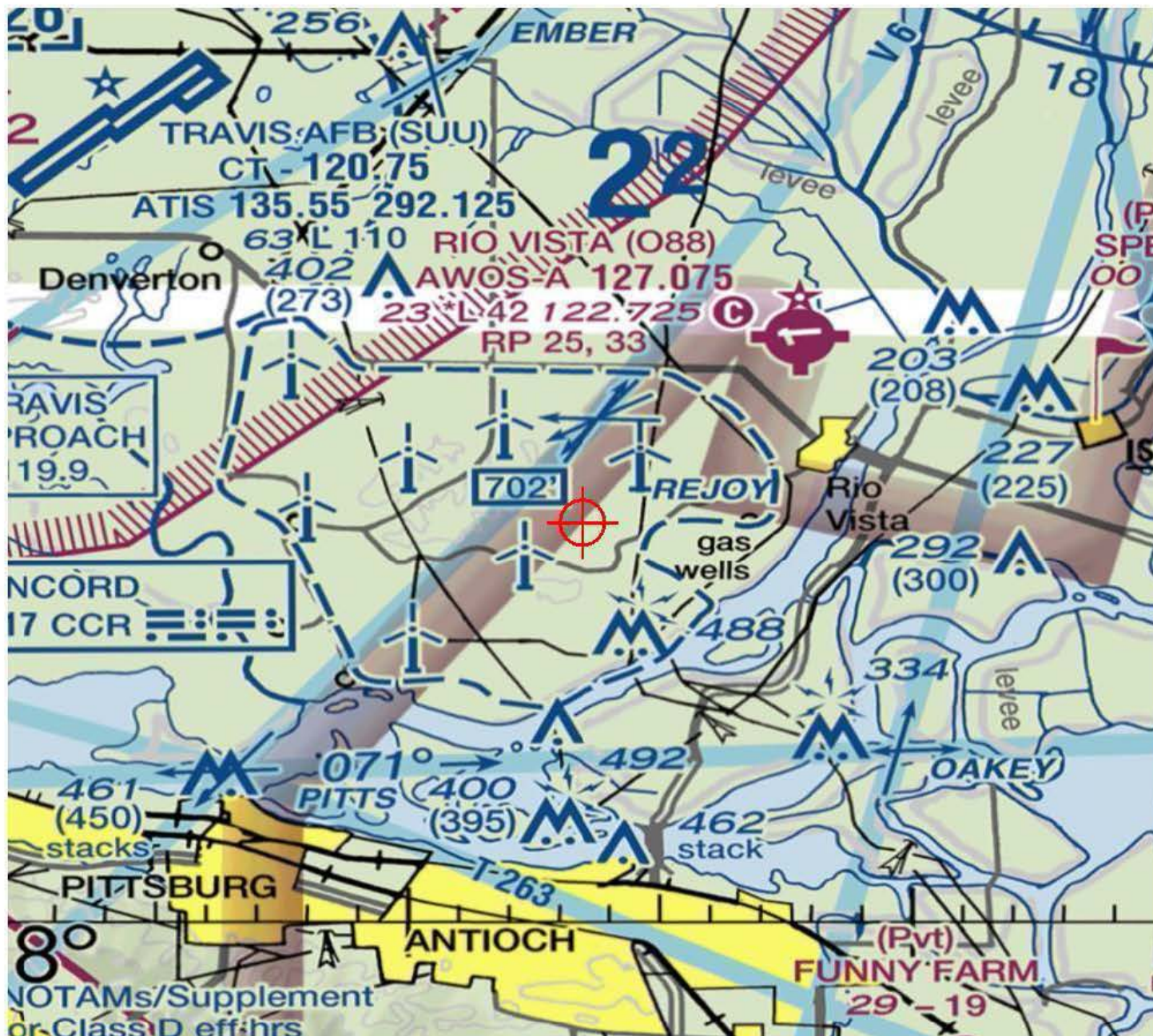
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13389-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1R2
Location:	Rio Vista, CA
Latitude:	38-07-44.90N NAD 83
Longitude:	121-46-20.90W
Heights:	183 feet site elevation (SE) 591 feet above ground level (AGL) 774 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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Signature Control No: 387140386-395150229

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

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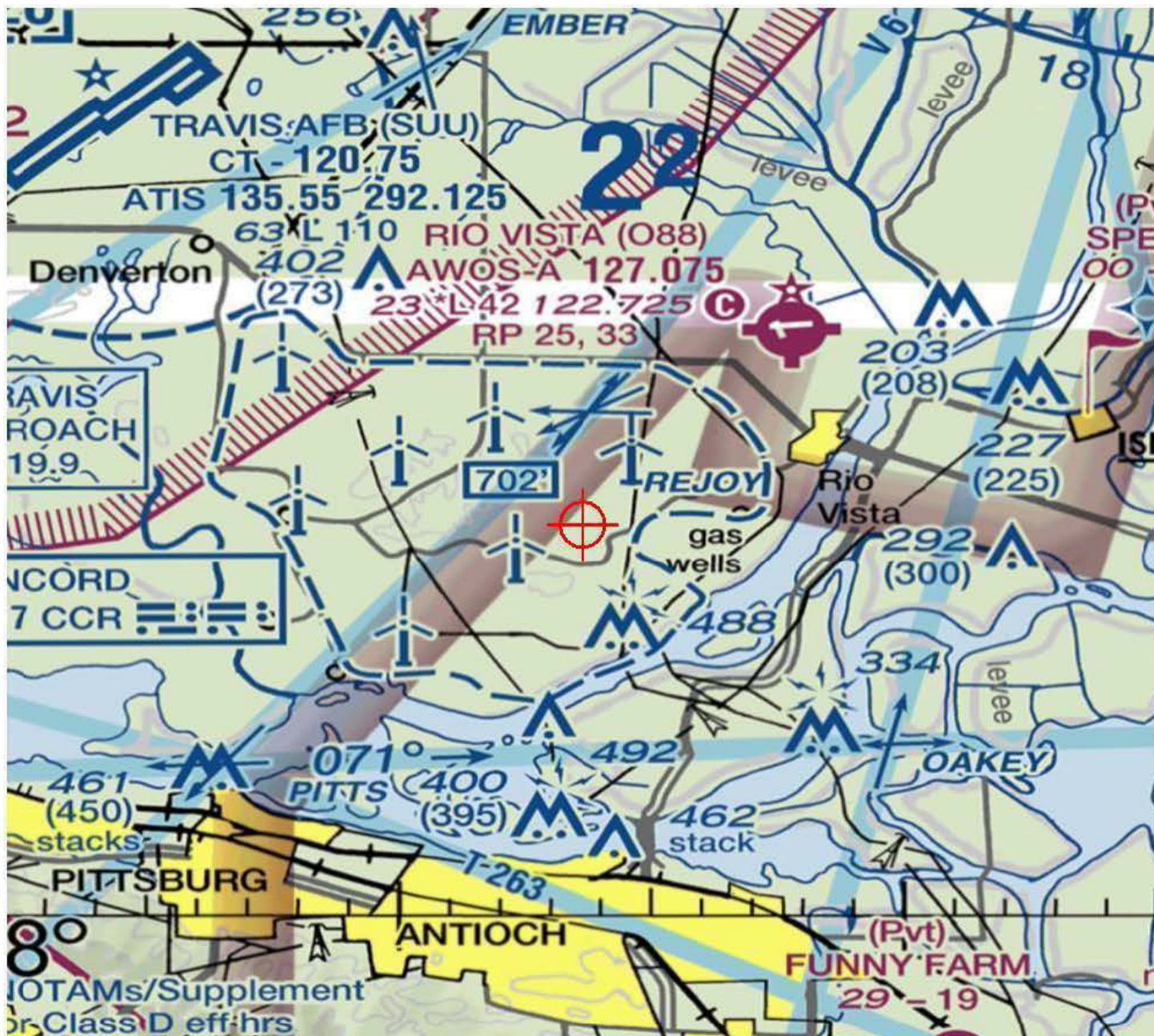
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13390-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1R3
Location:	Rio Vista, CA
Latitude:	38-07-35.49N NAD 83
Longitude:	121-46-28.29W
Heights:	189 feet site elevation (SE) 591 feet above ground level (AGL) 780 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13390-OE.

Signature Control No: 387140387-395150225

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

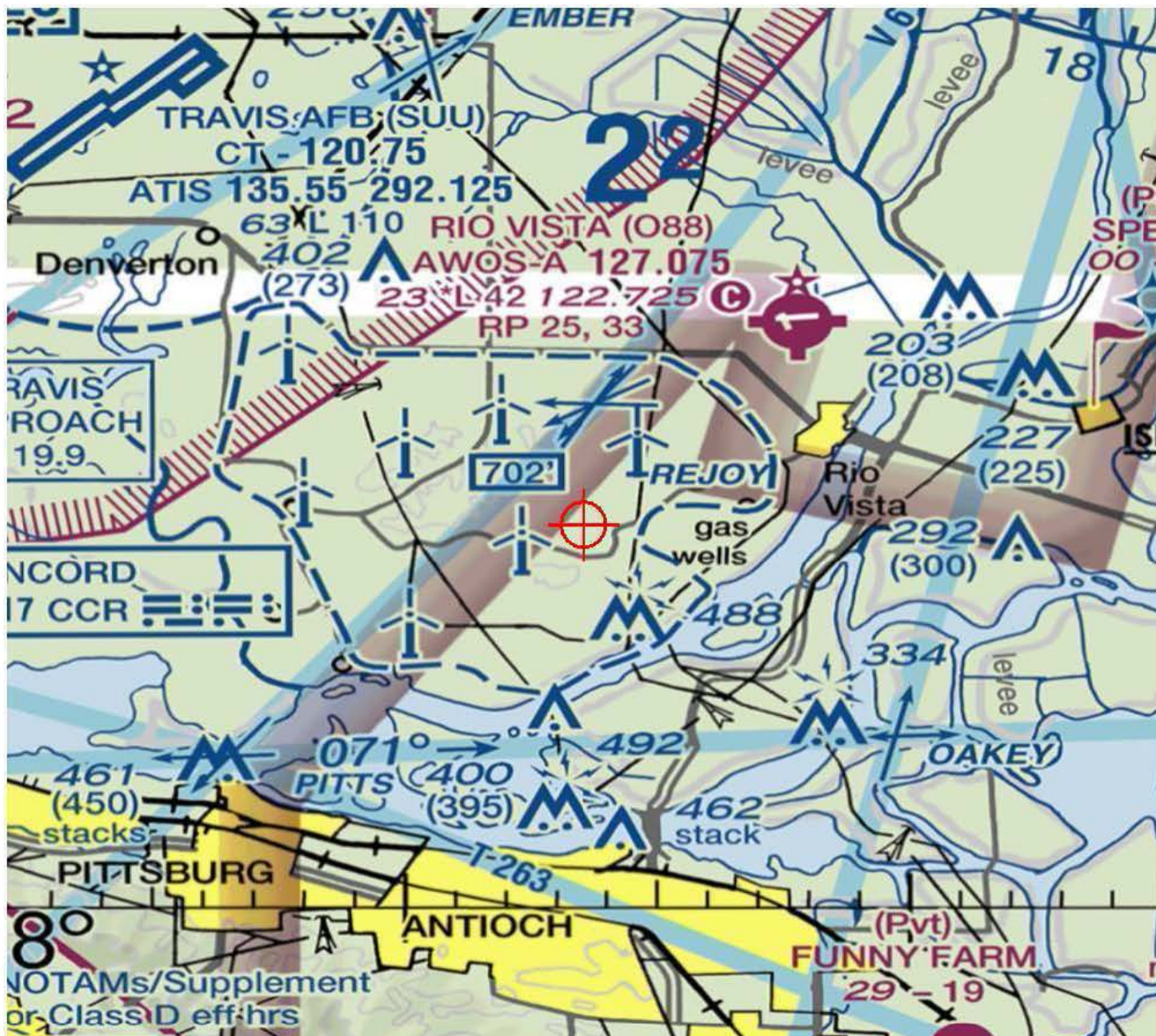
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13391-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1R4
Location:	Rio Vista, CA
Latitude:	38-07-25.84N NAD 83
Longitude:	121-46-31.86W
Heights:	187 feet site elevation (SE) 591 feet above ground level (AGL) 778 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13391-OE.

Signature Control No: 387140388-395150224

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
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ATC, Air Traffic Control
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The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

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The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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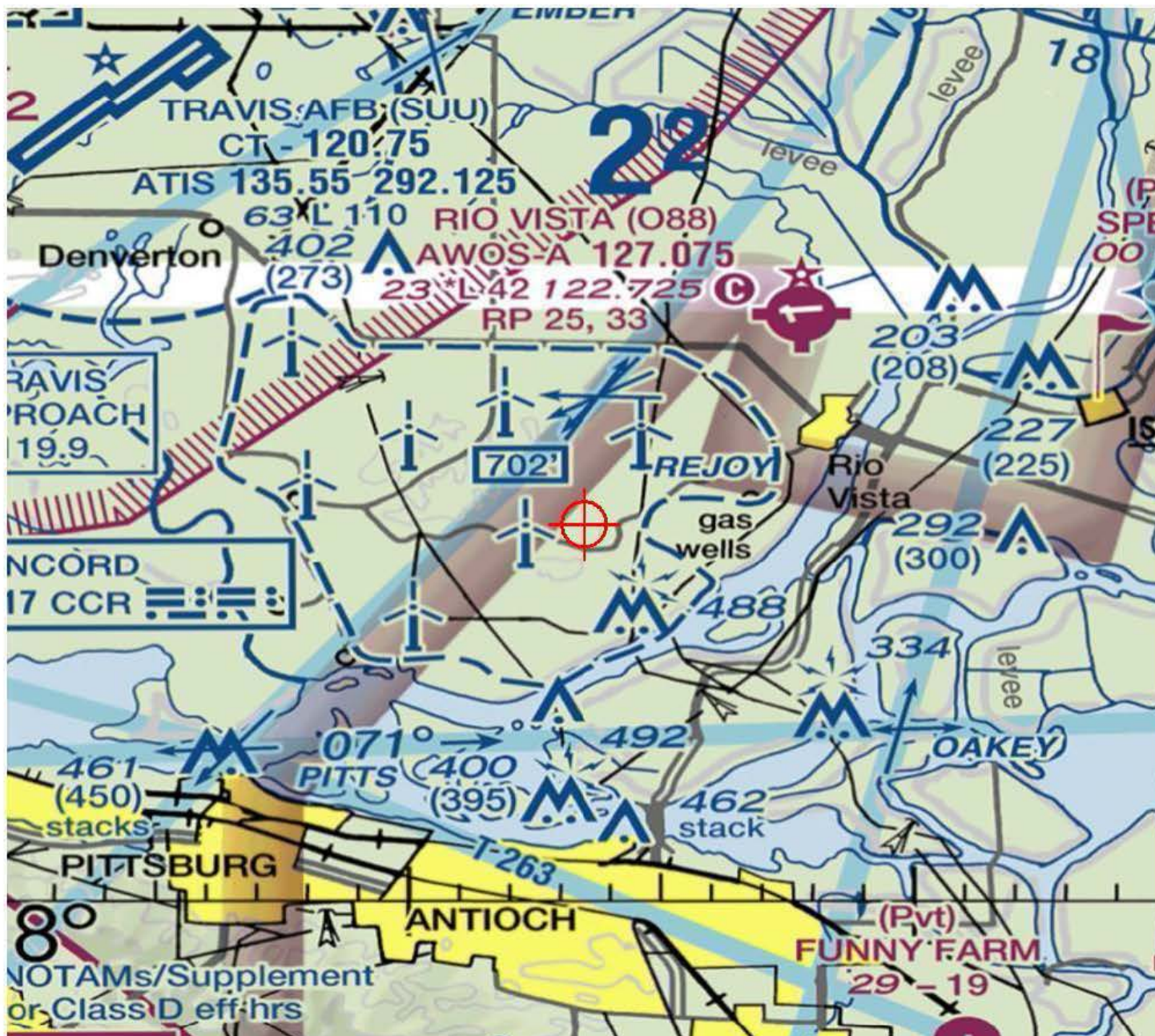
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13392-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1R5
Location:	Rio Vista, CA
Latitude:	38-07-14.14N NAD 83
Longitude:	121-46-28.35W
Heights:	116 feet site elevation (SE) 591 feet above ground level (AGL) 707 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13392-OE.

Signature Control No: 387140389-395150228

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13393-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1N1
Location:	Rio Vista, CA
Latitude:	38-07-18.49N NAD 83
Longitude:	121-45-46.46W
Heights:	166 feet site elevation (SE) 591 feet above ground level (AGL) 757 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13393-OE.

Signature Control No: 387140390-395150231

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
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2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

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The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

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We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13394-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1N2
Location:	Rio Vista, CA
Latitude:	38-07-08.51N NAD 83
Longitude:	121-45-43.44W
Heights:	157 feet site elevation (SE) 591 feet above ground level (AGL) 748 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13394-OE.

Signature Control No: 387140391-395150230

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13395-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1N3
Location:	Rio Vista, CA
Latitude:	38-06-53.36N NAD 83
Longitude:	121-45-15.19W
Heights:	115 feet site elevation (SE) 591 feet above ground level (AGL) 706 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13395-OE.

Signature Control No: 387140392-395150233

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
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MVA, Minimum Vectoring Altitude
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The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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2018-WTW-13388-OE by 190 feet
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2018-WTW-13390-OE by 169 feet
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2018-WTW-13396-OE by 156 feet

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The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

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In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

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The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13396-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P1N4
Location:	Rio Vista, CA
Latitude:	38-06-43.69N NAD 83
Longitude:	121-45-03.40W
Heights:	54 feet site elevation (SE) 591 feet above ground level (AGL) 645 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13396-OE.

Signature Control No: 387140393-395150245

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13397-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N1
Location:	Rio Vista, CA
Latitude:	38-05-33.53N NAD 83
Longitude:	121-49-52.57W
Heights:	242 feet site elevation (SE) 591 feet above ground level (AGL) 833 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13397-OE.

Signature Control No: 387140394-395150234

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
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2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

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2018-WTW-13393-OE

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2018-WTW-13398-OE
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2018-WTW-13400-OE
2018-WTW-13403-OE

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2018-WTW-13405-OE

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The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13398-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N2
Location:	Rio Vista, CA
Latitude:	38-05-08.34N NAD 83
Longitude:	121-50-03.54W
Heights:	173 feet site elevation (SE) 591 feet above ground level (AGL) 764 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13398-OE.

Signature Control No: 387140395-395150227

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13399-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N3
Location:	Rio Vista, CA
Latitude:	38-05-24.68N NAD 83
Longitude:	121-49-44.45W
Heights:	214 feet site elevation (SE) 591 feet above ground level (AGL) 805 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13399-OE.

Signature Control No: 387140396-395150242

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
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The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

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2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

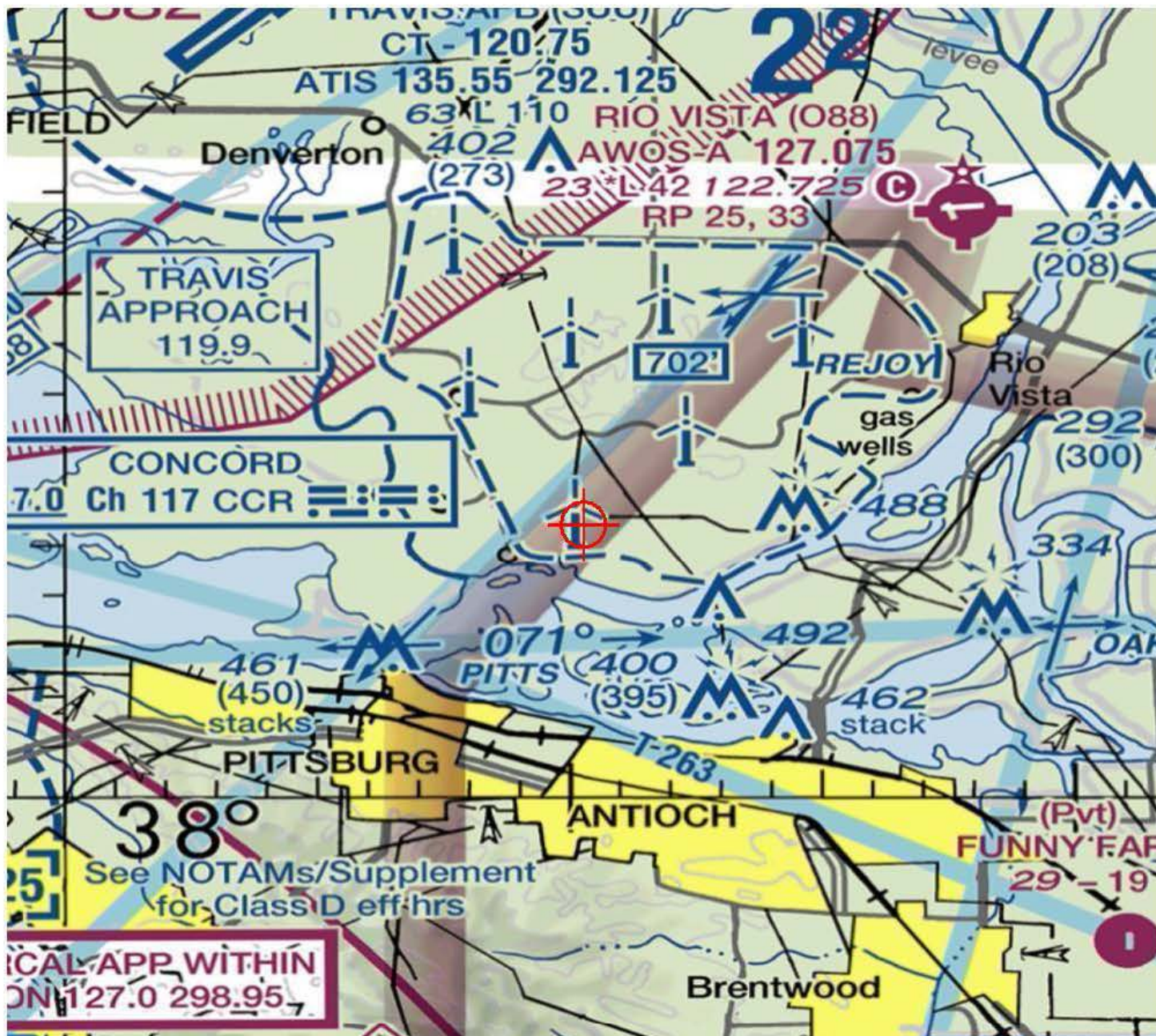
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13400-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N4
Location:	Rio Vista, CA
Latitude:	38-05-02.29N NAD 83
Longitude:	121-49-31.33W
Heights:	208 feet site elevation (SE) 591 feet above ground level (AGL) 799 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13400-OE.

Signature Control No: 387140399-395150237

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

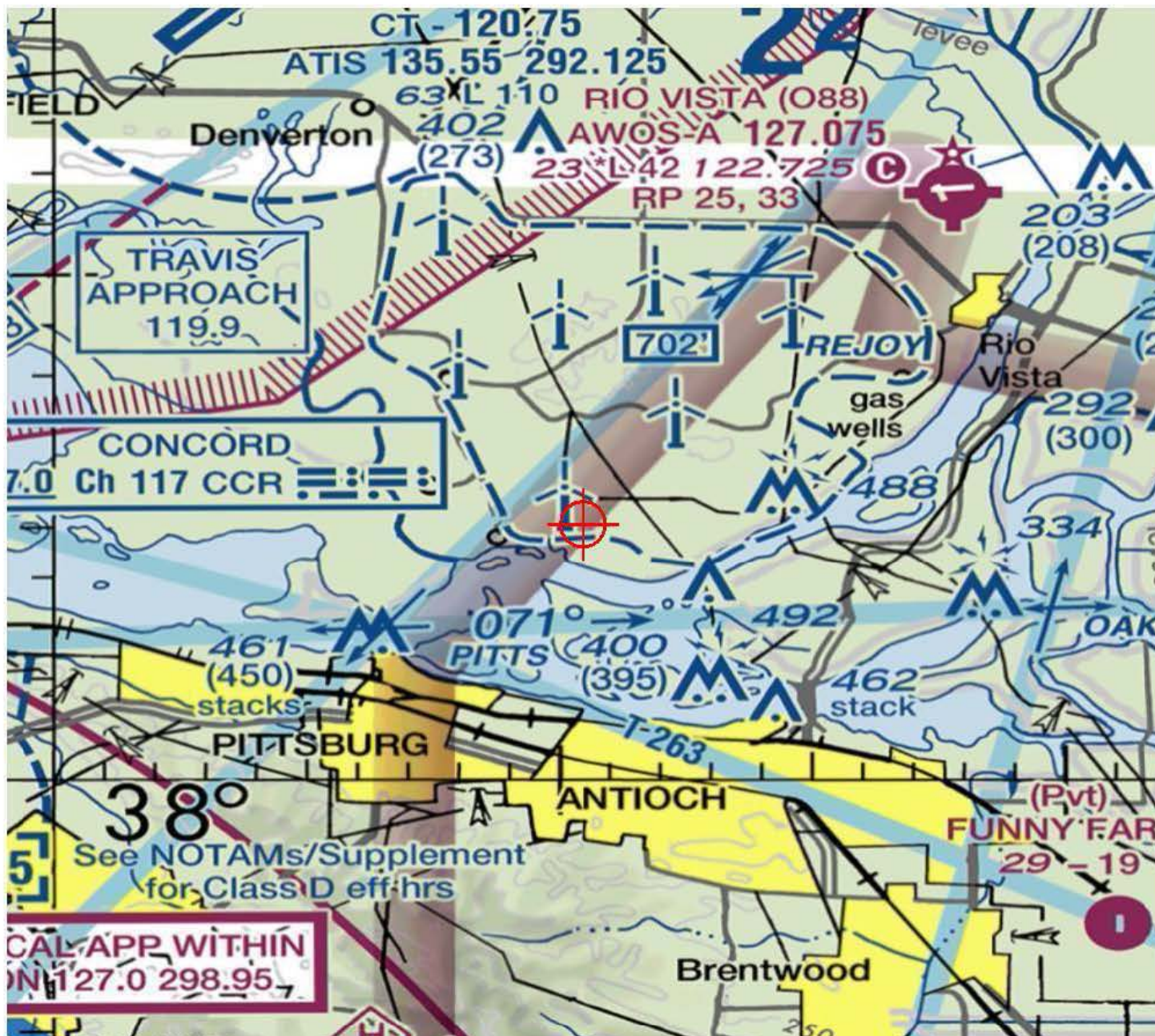
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13401-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N5
Location:	Rio Vista, CA
Latitude:	38-04-53.15N NAD 83
Longitude:	121-49-40.77W
Heights:	103 feet site elevation (SE) 591 feet above ground level (AGL) 694 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13401-OE.

Signature Control No: 387140402-395150240

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
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The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

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The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13402-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N6
Location:	Rio Vista, CA
Latitude:	38-04-43.66N NAD 83
Longitude:	121-49-43.80W
Heights:	116 feet site elevation (SE) 591 feet above ground level (AGL) 707 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

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Signature Control No: 387140406-395150243

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

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2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

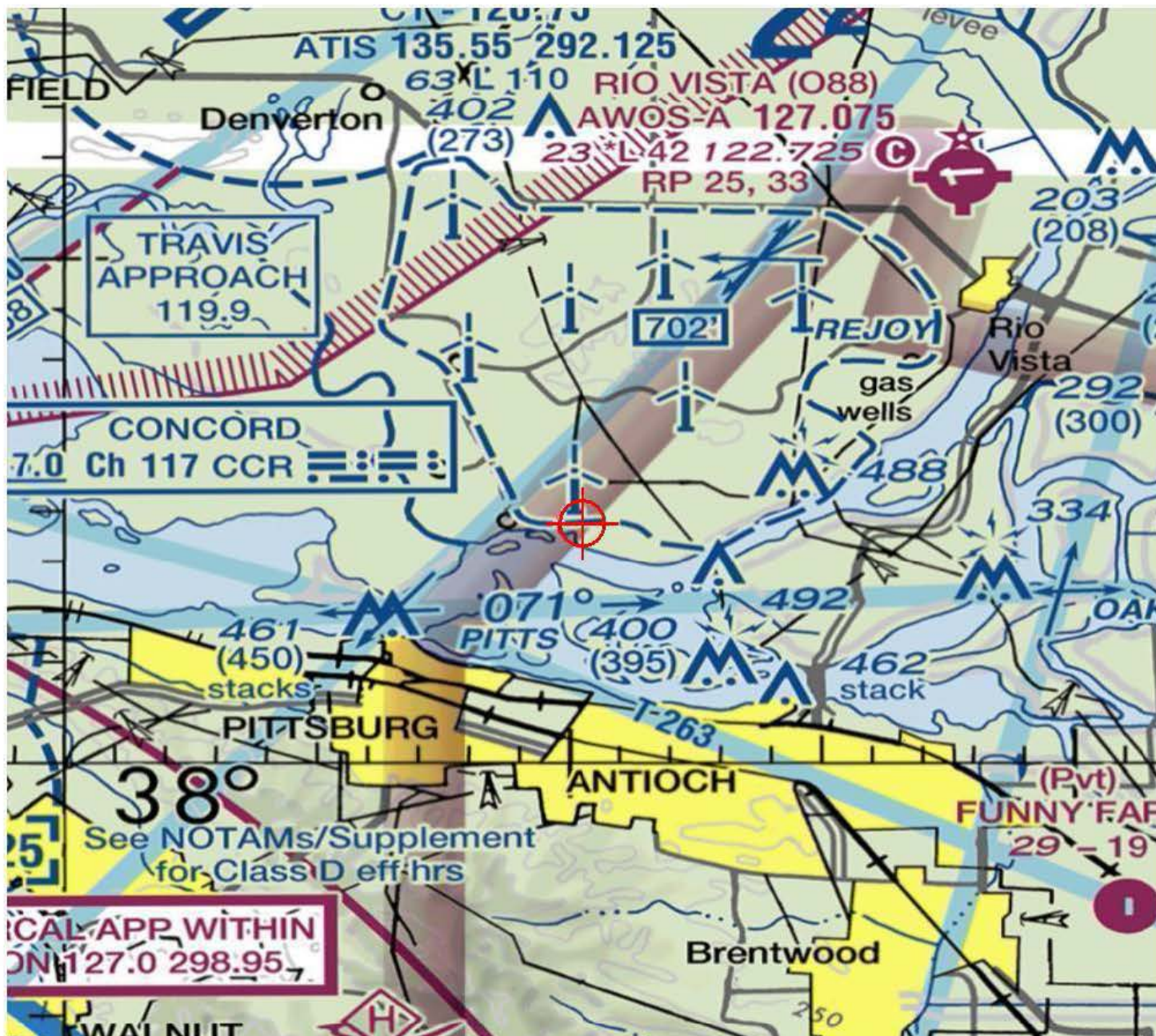
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13403-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N7
Location:	Rio Vista, CA
Latitude:	38-04-29.29N NAD 83
Longitude:	121-49-03.88W
Heights:	180 feet site elevation (SE) 591 feet above ground level (AGL) 771 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13403-OE.

Signature Control No: 387140407-395150244

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

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2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

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In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13404-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N8
Location:	Rio Vista, CA
Latitude:	38-04-48.12N NAD 83
Longitude:	121-48-51.19W
Heights:	211 feet site elevation (SE) 591 feet above ground level (AGL) 802 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13404-OE.

Signature Control No: 387140408-395150232

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

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2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13405-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N9
Location:	Rio Vista, CA
Latitude:	38-04-38.20N NAD 83
Longitude:	121-48-46.20W
Heights:	216 feet site elevation (SE) 591 feet above ground level (AGL) 807 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13405-OE.

Signature Control No: 387140409-395150238

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
NM, Nautical Mile
RWY, Runway
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
VFR, Visual Flight Rules

The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 92 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(2): A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 NM miles of the established reference point of O88 and that height increases in the proportion of 100 feet for each additional NM from the airport up to a maximum of 499 feet. The following would exceed:

2018-WTW-13388-OE by 190 feet
2018-WTW-13389-OE by 187 feet
2018-WTW-13390-OE by 169 feet
2018-WTW-13391-OE by 154 feet
2018-WTW-13392-OE by 141 feet

2018-WTW-13393-OE by 179 feet
2018-WTW-13394-OE by 167 feet
2018-WTW-13395-OE by 163 feet
2018-WTW-13396-OE by 156 feet

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the Northern California TRACON (NCT) MVA for NCT_MVA_FUS3_2017 Sector MCC_B from 1,700 feet AMSL to 1,800 feet AMSL.

2018-WTW-13388-OE
2018-WTW-13389-OE
2018-WTW-13390-OE
2018-WTW-13391-OE
2018-WTW-13393-OE

2018-WTW-13397-OE
2018-WTW-13398-OE
2018-WTW-13399-OE
2018-WTW-13400-OE
2018-WTW-13403-OE

2018-WTW-13404-OE
2018-WTW-13405-OE

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In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

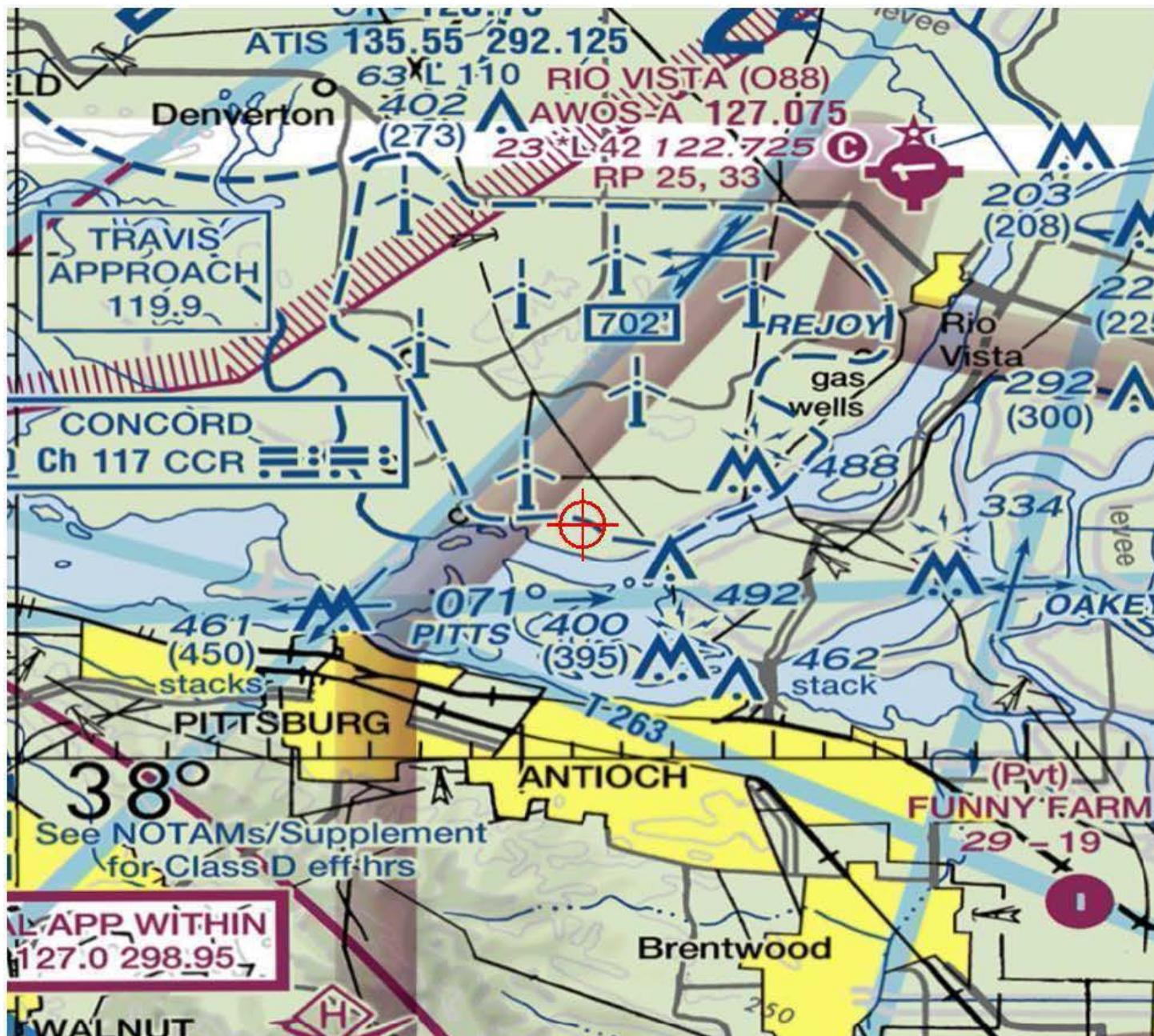
The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).





Mail Processing Center
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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13406-OE

Issued Date: 02/01/2019

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine P4N10
Location:	Rio Vista, CA
Latitude:	38-04-22.44N NAD 83
Longitude:	121-48-30.99W
Heights:	148 feet site elevation (SE) 591 feet above ground level (AGL) 739 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 60 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/01/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 03, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 13, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523, or steve.phillips@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13406-OE.

Signature Control No: 387140410-395150239

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARSR, Air Route Surveillance Radar
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
CAT, Category
CFR, Code of Federal Regulations
DASR, Digital Airport Surveillance Radar
IFR, Instrument Flight Rules
MVA, Minimum Vectoring Altitude
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RWY, Runway
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The proposed structures are part of a proposed wind farm that would be located approximately 5.02 - 9.07 NM southwest of the Airport Reference Point for the Rio Vista Municipal Airport (O88), Rio Vista, CA. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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2018-WTW-13388-OE by 190 feet
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The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.

In order to facilitate the public comment process, the studies were circularized under ASN 2018-WTW-13388-OE on December 04, 2018, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. One letter of objection was received as a result of the circularization.

The Solano County Airport Land Use Commission (County) submitted comments that may not necessarily be an "objection" but rather statements. Some of their statements are simply repeating applicable law / rule / orders. They stated that these would be the tallest wind turbines in the area and larger than other onshore turbines elsewhere. Also stated was a belief that these have electromagnetic effects on radar. One statement said they "have seen information that conflicts" with the preliminary analysis of not exceeding TPA. Instead of submitting that stated information, a request was made for the FAA to see if any other obstruction standard was exceeded.

We are not sure what to make of the statement about these being the tallest in the area. Simply being taller than other structures has never been, nor will it ever be, the sole indicator of whether the structure would present an unacceptable impact upon the safe and efficient use of the navigable airspace.

The letter left the impression that the County believes exceeding one or more of the obstruction standards of 14 CFR Part 77 is reason enough to determine the proposal to be a hazard. That is not the case. It is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.

Records indicate that O88 has approximately 35,000 operations per year primarily from CAT A and B general aviation aircraft. All except one of the proposed turbines lie beyond the TPA for all RWYs and aircraft categories. That one proposal is on the edge of the RWY 15/33 TPA for CAT D, but at 2,199 feet long, this

RWY is incapable of sustaining CAT D aircraft operations. The size of the TPA is based upon the aircraft that regularly use a particular RWY. The preliminary assessment of not exceeding TPA has been confirmed.

Note: Aircraft categories are based on approach speed, CAT A = less than 91 knots, CAT B = 91- 120 knots, CAT C = 121-140 knots, CAT D = 141-165 knots.

The County submitted a lot about radar effects. Wind turbines rarely, if ever create "electromagnetic" interference. If they are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore be a physical interference. Simply being "seen" by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on the NCT MVA. MVAs are solely used by ATC and not published for public use and are not circulated for public comment. The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. As stated above, the proposals are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on VFR traffic pattern operations at O88, or any other known public use or military airports. At 591 feet AGL, the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route or that they would pose a problem for pilots operating en route. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 60 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

FAA Determinations Extensions



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13394-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1N2
Location:	Rio Vista, CA
Latitude:	38-07-08.51N NAD 83
Longitude:	121-45-43.44W
Heights:	157 feet site elevation (SE) 591 feet above ground level (AGL) 748 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13394-OE.

Signature Control No: 387140391-466582664

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13394-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13392-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1R5
Location:	Rio Vista, CA
Latitude:	38-07-14.14N NAD 83
Longitude:	121-46-28.35W
Heights:	116 feet site elevation (SE) 591 feet above ground level (AGL) 707 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13392-OE.

Signature Control No: 387140389-466582665

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13392-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13388-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1R1
Location:	Rio Vista, CA
Latitude:	38-07-54.16N NAD 83
Longitude:	121-46-31.47W
Heights:	208 feet site elevation (SE) 591 feet above ground level (AGL) 799 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13388-OE.

Signature Control No: 387140385-466582666

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13388-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13390-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1R3
Location:	Rio Vista, CA
Latitude:	38-07-35.49N NAD 83
Longitude:	121-46-28.29W
Heights:	189 feet site elevation (SE) 591 feet above ground level (AGL) 780 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13390-OE.

Signature Control No: 387140387-466582667

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13390-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
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Aeronautical Study No.
2018-WTW-13399-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N3
Location:	Rio Vista, CA
Latitude:	38-05-24.68N NAD 83
Longitude:	121-49-44.45W
Heights:	214 feet site elevation (SE) 591 feet above ground level (AGL) 805 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13399-OE.

Signature Control No: 387140396-466582668

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13399-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
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Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13395-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1N3
Location:	Rio Vista, CA
Latitude:	38-06-53.36N NAD 83
Longitude:	121-45-15.19W
Heights:	115 feet site elevation (SE) 591 feet above ground level (AGL) 706 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13395-OE.

Signature Control No: 387140392-466582669

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13395-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13397-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N1
Location:	Rio Vista, CA
Latitude:	38-05-33.53N NAD 83
Longitude:	121-49-52.57W
Heights:	242 feet site elevation (SE) 591 feet above ground level (AGL) 833 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13397-OE.

Signature Control No: 387140394-466582670

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13397-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13391-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1R4
Location:	Rio Vista, CA
Latitude:	38-07-25.84N NAD 83
Longitude:	121-46-31.86W
Heights:	187 feet site elevation (SE) 591 feet above ground level (AGL) 778 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13391-OE.

Signature Control No: 387140388-466582671

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13391-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13393-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1N1
Location:	Rio Vista, CA
Latitude:	38-07-18.49N NAD 83
Longitude:	121-45-46.46W
Heights:	166 feet site elevation (SE) 591 feet above ground level (AGL) 757 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13393-OE.

Signature Control No: 387140390-466582672

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13393-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13398-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N2
Location:	Rio Vista, CA
Latitude:	38-05-08.34N NAD 83
Longitude:	121-50-03.54W
Heights:	173 feet site elevation (SE) 591 feet above ground level (AGL) 764 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13398-OE.

Signature Control No: 387140395-466582673

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13398-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13402-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N6
Location:	Rio Vista, CA
Latitude:	38-04-43.66N NAD 83
Longitude:	121-49-43.80W
Heights:	116 feet site elevation (SE) 591 feet above ground level (AGL) 707 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13402-OE.

Signature Control No: 387140406-466582674

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13402-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13406-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N10
Location:	Rio Vista, CA
Latitude:	38-04-22.44N NAD 83
Longitude:	121-48-30.99W
Heights:	148 feet site elevation (SE) 591 feet above ground level (AGL) 739 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13406-OE.

Signature Control No: 387140410-466582675

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13406-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13396-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1N4
Location:	Rio Vista, CA
Latitude:	38-06-43.69N NAD 83
Longitude:	121-45-03.40W
Heights:	54 feet site elevation (SE) 591 feet above ground level (AGL) 645 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13396-OE.

Signature Control No: 387140393-466582676

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13396-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13389-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P1R2
Location:	Rio Vista, CA
Latitude:	38-07-44.90N NAD 83
Longitude:	121-46-20.90W
Heights:	183 feet site elevation (SE) 591 feet above ground level (AGL) 774 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13389-OE.

Signature Control No: 387140386-466582677

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13389-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13403-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N7
Location:	Rio Vista, CA
Latitude:	38-04-29.29N NAD 83
Longitude:	121-49-03.88W
Heights:	180 feet site elevation (SE) 591 feet above ground level (AGL) 771 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13403-OE.

Signature Control No: 387140407-466582678

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13403-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13404-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N8
Location:	Rio Vista, CA
Latitude:	38-04-48.12N NAD 83
Longitude:	121-48-51.19W
Heights:	211 feet site elevation (SE) 591 feet above ground level (AGL) 802 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13404-OE.

Signature Control No: 387140408-466582679

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13404-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13405-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N9
Location:	Rio Vista, CA
Latitude:	38-04-38.20N NAD 83
Longitude:	121-48-46.20W
Heights:	216 feet site elevation (SE) 591 feet above ground level (AGL) 807 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13405-OE.

Signature Control No: 387140409-466582680

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13405-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13401-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N5
Location:	Rio Vista, CA
Latitude:	38-04-53.15N NAD 83
Longitude:	121-49-40.77W
Heights:	103 feet site elevation (SE) 591 feet above ground level (AGL) 694 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13401-OE.

Signature Control No: 387140402-466582681

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13401-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTW-13400-OE

Issued Date: 01/28/2021

Amanda Beck
Sacramento Municipal Utility District
6201 S St., MS MD-2
Sacramento, CA 95817

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine P4N4
Location:	Rio Vista, CA
Latitude:	38-05-02.29N NAD 83
Longitude:	121-49-31.33W
Heights:	208 feet site elevation (SE) 591 feet above ground level (AGL) 799 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before February 27, 2021. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This extension becomes final on March 09, 2021 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/01/2022 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTW-13400-OE.

Signature Control No: 387140399-466582682

(EXT -WT)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-WTW-13400-OE

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Appendix C

**SMUD Response to SMW NOP
Comments and Westslope Consulting
and Capitol Airspace Comment Letters**

April 26, 2019

VIA E-MAIL AND U.S. MAIL

Mr. Robert "Perl" Perlmutter
Shute Mihaly & Weinberger LLP
396 Hayes Street
San Francisco, California 94102

Re: Solano County ALUC Comments on SMUD Notice of Preparation for Solano 4 Wind Project

Dear Mr. Perlmutter:

We represent the Sacramento Municipal Utility District ("SMUD") and I am writing in response to your letter dated February 8, 2019, submitted on behalf of the Solano County Airport Land Use Commission ("ALUC") with comments regarding the January 9, 2019 Notice of Preparation ("NOP") for the Solano Wind Phase 4 Project ("Project"). While not required to do so under the California Environmental Quality Act ("CEQA"), SMUD is providing this response to the ALUC out of professional courtesy and in the interests of working cooperatively with the County on this important Project. As described in more detail below, the NOP's statement that the Solano Wind Project does not require ALUC approval is accurate. First, electrical generation/production facilities are exempt from a county's building and zoning ordinances under Government Code Section 53091, subdivisions (d) and (e). Second, the Federal Aviation Administration ("FAA") finding of no significant hazard for the Project preempts the ALUC regulations under the Travis Air Force Base ("AFB") Land Use Compatibility Plan ("LUCP") regarding air safety, including radar interference. Third, even if the ALUC regulations applied to the Project, SMUD, as a local agency, has the authority to overrule the ALUC determination under the State Aeronautics Act ("SAA")¹ provisions. Notwithstanding the lack of formal approval process, SMUD looks forward to reviewing and responding to comments from the Solano County ALUC on the Project's Environmental Impact Report to help ensure that concerns surrounding air safety are appropriately addressed.

¹ Pub. Util. Code, §§ 21001, et seq.

I. The Project is Exempt from the ALUC Review Because an Energy Generating/Production Facility is Exempt from a County’s Zoning and Building Ordinances under the Government Code Section 53091.

SMUD’s wind turbine facilities are exempted from the ALUC provisions because under subdivisions (d) and (e) of Section 53091 of the Government Code, the zoning and building ordinances of a county or city *shall not* apply to the location or construction of facilities for the generation of electrical energy. SMUD, as a municipal utility district, is a local agency for purposes of Section 53091. (See *City of Lafayette v. East Bay Municipal Utilities District* (1993) 16 Cal.App.4th 1005, 1012; 78 Cal.Atty.Gen.Ops. 31 (1995); see also *Center for Biological Diversity v. County of San Bernardino* (2016) 247 Cal.App.4th 326, 344 fn.4 [county did not have authority to apply building and zoning regulations to water project proposed by local water agency pursuant to Sections 53091 and 53096].) As a wind turbine facility is an electrical generation facility, the Project qualifies for the exemptions under subdivisions (d) and (e) of Section 53091.

In your February 8, 2019 Letter, the ALUC insists that Section 53091 exemptions do not apply because the ALUC is an independent governmental entity and not a “city or a county,” and therefore the LUCP is not a “city or county” ordinance. (2/8/2019 Letter, at pp. 2-3.) As discussed below, the ALUC’s powers exercised pursuant to the LUCP are tantamount to those powers exercised by a “county or city” in enacting a zoning ordinance. Indeed, the ALUC and its LUCP were formed pursuant to the County’s police powers for the enactment of zoning and land use regulations. Consequently, to divorce the LUCP from the County’s zoning powers would ignore the ALUC’s and LUCP’s foundational underpinnings. Further, the Section 53091 energy facility exemptions are more specific than the SAA provisions, and thus control.

A. The ALUC’s Powers in Approving an LUCP is Tantamount to that Exercised by Solano County in Enacting a Zoning Ordinance, since it is an Exercise of the Same Zoning Power.

The ALUC’s exercise of authority in drafting the LUCP is an exercise of the same zoning authority conferred by the Legislature upon cities and counties. Cities and counties draw their zoning authority from the state’s general police powers. (See Cal. Const. art. XI, § 7 [“A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws”].) The Attorney General has made clear that the ALUC exercises its authority specifically by using zoning power, which derives from the general police powers possessed by cities and counties. (See 63 Cal.Atty.Gen.Ops. 641, at pp. 3-4 (1980) [“Attorney General Opinion No. 80-416”].) “Even though generally thought of in terms of city or county regulation, zoning is one exercise of the state’s police power, and there is no impediment to the legislature granting that power to other agencies in the statewide interests.” (*Id.* at p. 4.) This is precisely what the legislature has done in this case in creating the ALUC under the SAA.

The ALUC was established by Solano County on December 7, 1971 by Ordinance 781 to provide for orderly development of public airports in Solano County, as well as area surrounding airports to prevent new noise and safety problems.² The act creating the ALUC—a sub-agency of the County—and the powers delegated to the ALUC are derived from Solano County’s inherent police powers.³ Thus, the ALUC’s powers in drafting and approving the LUCP are an extension of Solano County’s police powers, and not separate powers of an independent agency.

Nevertheless, your February 8, 2019 Letter asserts that the ALUC’s authority is something more than or separate from that of a city or county, as the ALUC is an independent government body. But the Attorney General Opinion No. 80-416 demonstrates that the authority exercised by the ALUC is a type of “zoning authority” shared by counties and cities. In fact, the question in that case was whether an ALUC is able to zone land in the vicinity of an airport. The Attorney General found that an ALUC is, in fact, able to zone a land parcel, and that “ALUC’s [sic] have been granted zoning authority.” (Attorney General Opinion No. 80-416, at p. 5.) Contrary to the assertion in your February 8, 2019 Letter, the Attorney General in no way implied that the zoning authority possessed by an ALUC derives from a different or independent source than that possessed by a city or county.

Furthermore, under the SAA provisions, cities and counties have the authority to overrule the action of the ALUC. For example, a county may expressly overrule an ALUC’s disapproval of an action, regulation or permit by a two-thirds vote of its governing body, along with making certain findings. (Pub. Util. Code, § 21675.1(d).) A county also has the power to decide whether to submit all subsequent actions to the ALUC pursuant to Public Utilities Code Section 21676.5(a). Solano County’s ALUC Review Procedures recognize this overruling authority possessed by a county over the ALUC. (Solano County ALUC Review Procedures, § 1.5.2(b).) This authority demonstrates that the ALUC’s powers are shared with, not separate from or in addition to, those of Solano County.

While Attorney General Opinion No. 80-416 acknowledges the lack of clarity in state law regarding the precise interplay between city and county zoning and the authority held by an ALUC, the Attorney General clearly lays out the mechanism for reconciling the land use planning and zoning regulations of an ALUC with those of the county or city in which the ALUC is located:

The first level is that of measuring the local regulation against those of the ALUC, and if the ALUC determines that the local regulation is inconsistent with the ALUC plan, and after a hearing, that the implementation of the local regulation

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https://www.solanocounty.com/depts/rm/boardscommissions/solano_county_airport_land_use_commission/default.asp.

³ Even the SAA recognizes the police powers of a county and require counties to establish an ALUC for orderly development of the public airports in a county and the areas around the airports. (Pub. Util. Code, § 21670(b).)

would be harmful and not in the best interests of the airport and the adjacent area, then, at that point, the ALUC plan would prevail On the second level, however, the local agency, after a hearing, may overrule the determination of the ALUC if the city council or board of supervisors so votes with the requisite majority. The existence of such an override, however, does not detract from our conclusion that airport land use commissions have been granted zoning authority.

(Attorney General Opinion No. 80-416, at pp. 4-5.) These procedures clearly demonstrate that the ALUC’s authority is not superior to, or unconnected with, that of a city or county, but rather derives from the same source and is carefully balanced with the zoning authority of a county or city under the SAA.

Thus, the ALUC’s zoning authority in drafting the LUCP is indeed an exercise of the same zoning authority conferred by the Legislature upon cities and counties, and the Section 53091 exemptions apply with equal force to the ALUC’s zoning provisions.

B. Principles of Statutory Construction Indicate Government Code Section 53091 Exempts SMUD from the LUCP as Section 53091 is a more Specific Provision than the SAA.

Even if one considers that there is a potential conflict between Public Utilities Code Section 21670(f) and Government Code Section 53091, the Section 53091 exemptions prevail because they expressly exempt facilities “for the production or generation of electrical energy.” For example, while Section 21670(f) of the Public Utilities Code provides generally that “special districts, school districts, and community college districts are included among the local agencies that are subject to airport land use laws,” Section 53091(d) of the Government Code provides specifically that:

Building ordinances of a county or city *shall not apply* to the location or construction of facilities for the production, generation, storage, treatment, or transmission of . . . electrical energy by a local agency.

Section 53091(e) further provides that:

Zoning ordinances of a county or city *shall not apply* to the location or construction of facilities . . . for the production or generation of electrical energy.

The ALUC’s February 8, 2019 Letter argues that Section 21670(f) expressly subjects special districts such as SMUD to the ALUC’s land use requirements. But the plain reading of the statutes above supports SMUD’s interpretation that zoning actions by the ALUC *are not binding* on SMUD (a local agency) with regard to the location and construction of wind turbines for electric generation under Section 53091 of the Government Code.

As a well-settled principal of statutory interpretation, a specific statute relating to a particular subject controls over a more general statute covering the same subject. (See, e.g., *Rea Enterprises v. California Coastal Zone Conservation Commission* (1975) 52 Cal.App.3d 596.)

Here, the provisions relating to Section 21670(f) of the Public Utilities Code are more general, as they essentially state that many different types of “local agencies” are subject to “airport land use laws.” Subdivisions (d) and (e) of Section 53091 of the Government Code, however, provide a specific exemption from local zoning ordinances for facilities “for the production or generation of electrical energy.” Given that subdivisions (d) and (e) grant narrow and specific exemptions for certain facilities, while Section 21670(f) makes airport land use laws broadly applicable to all local agencies, the exemptions available under the subdivisions (d) and (e) of Section 53091 are the narrower and more specific of the two sets of provisions. To interpret otherwise would allow the energy facilities exemption to be swallowed by the more general airport land use laws. The specific exemption for electrical generating facilities makes sense; otherwise agencies and public utilities developing energy facilities would be completely beholden to local politics within cities and counties, and thus unable to provide necessary services to customers throughout a region or to adjacent cities or counties.

Overall, the ALUC’s authority in drafting the LUCP provisions are derived from Solano County’s police powers and zoning authorities. And because the exemptions within Section 53091 are narrower and more specific than those announced in the SAA provisions, the Section 53091 exemptions control. Thus, SMUD’s wind turbine facilities are exempt from the LUCP provisions.

II. The ALUC Review of the Project is Preempted by Federal Law.

The ALUC in its LUCP has attempted to impose broad land use controls based on general safety and noise concerns, but in limiting the height of wind turbines has relied solely on the narrow and technical issue of alleged radar interference. As to the narrow and technical issue of radar interference, FAA and its regulations concerning air safety and aviation navigation occupy the field and preempt the ALUC’s land use regulations regarding radar system interference.

The federal government has “exclusive sovereignty of airspace of the United States.” (49 U.S.C. § 40103.) Congress has also given the Administrator of the FAA authority to regulate “the use of airspace necessary to ensure the safety of aircraft” and to “prescribe air traffic regulations” for, among other things, “navigating, protecting, and identifying aircraft.” (49 U.S.C. § 40103[b].) In addition, the California legislature “recognizes the authority of the federal government to regulate the operation of aircraft and to control the use of the airways” (Pub. Util. Code, § 21240.) California further acknowledges the preemptive nature of federal regulation in this area: “nothing in [the State Aeronautics Act] shall be construed to give the department [of transportation] the power to so regulate and control safety factors in the operation of aircraft or to control use of the airways.” (*Id.*)

A Ninth Circuit Court of Appeals decision affirms that Congress intended the Federal Aviation Act of 1958 to preempt state regulation of air safety. (*Montalvo v. Spirit Airlines* (9th Cir. 2007) 508 F.3d 464, 470-72.) The *Montalvo* court summarized,

the regulations enacted by the Federal Aviation Administration, read in conjunction with the [Federal Aviation Act] itself, *sufficiently demonstrate an intent to occupy exclusively the entire field of aviation safety* and carry out Congress’ intent to preempt all state law in this field.

(*Id.* at 471, emphasis added.) California Courts of Appeal have further concluded that the FAA has authority over navigation aids such as air control towers, radio navigation systems, runway markers, and directional beams. (*Bethman v. City of Ukiah* (1989) 216 Cal.App.3d 1395, 1403, 1408; *City of Burbank v. Burbank-Glendale-Pasadena Airport Authority* (1999) 72 Cal.App.4th 366, 379.) Likewise, a federal district court in South Dakota has opined that a state agency may not veto a FAA No Hazard Determination, particularly where the basis for the agency’s veto, in that case, potential harm to visual flight rules (“VFR”) routes, had been specifically considered by the FAA. (*Big Stone Broadcasting, Inc. v. Lindbloom* (D.S.D. 2001) 161 F.Supp.2d 1009, 1019.) The court in that case enjoined the state agency from prohibiting construction of radio towers where the FAA had determined that the towers would result in no hazard to air traffic and safety. (*Id.* at 1021.)

In this case, the FAA has already evaluated the Project’s “impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures.” (FAA Determination of No Hazard to Air Navigation, dated February 1, 2019 (“FAA Determination”), at p. 4.) The FAA Determination states that the Project’s “aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities.” (*Id.* at p. 1)

We also note the process for obtaining the Determination of No Hazard included review by the Department of Defense Clearinghouse, which engaged Travis Airforce Base (Travis). If Travis had filed objections related to radar, we understand the FAA would have suspended processing of SMUD’s application and directed formation of a Mitigation Monitoring Team to resolve concerns. These processes did not happen.

The ALUC submitted comments to the FAA, stating the ALUC belief that the wind turbines would “have electromagnetic effects on radar [of Travis AFB].” (*Id.* at p. 5.) But the ALUC never submitted any information in support of these statements and instead requested that FAA confirm that the Project did not exceed obstruction standards. (*Ibid.*) FAA did analyze the Project’s impacts, including exceedances of various obstructions standards, and concluded that just because a wind turbine is within the line of sight of a radar sensor *does not imply* that the

turbine will result in unacceptable adverse impacts on Air Traffic Control (“ATC”) operations. (*Id.* at pp. 5-6.) While the Project turbines would be within the line of sight of the Travis AFB radar facilities, “[s]tudy for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations.” (*Id.* at p. 6.) The FAA thus concluded that while the Project turbines “would extend upwards into altitudes commonly used for en route VFR flight,” there is no information that the turbines would be “located along a regularly used VFR route or that they would pose a problem for pilots operating en route” or otherwise result in unacceptable adverse impact on ATC operations. (*Id.* at p. 6.) The FAA’s determination is conclusive.

Further, the ALUC neglected to file a petition for review of the FAA Determination by the review deadline, and the FAA Determination became final on March 13, 2019. The ALUC has thus waived any challenge to the FAA’s No Hazard Determination, and the LUCP provisions that rely on unsupported and inaccurate radar interference issues are preempted under the federal law. Therefore, there is no basis for the ALUC review of the Project for radar interference or under the visual flight rules.

III. Even if the LUCP Applied to the Project, SMUD can Overrule the ALUC’s Determination.

Even if the updated Travis AFB LUCP provisions regarding radar interference apply, SMUD, as a local agency, can overrule the ALUC by holding a hearing, making findings that the action is consistent with the purposes of the SAA, and obtaining a two-thirds vote of its governing body. (*See* Pub. Util. Code, § 21674.7(b) [“This subdivision does not limit the authority of local agencies to overrule [the ALUC] actions or recommendations pursuant to Sections 21676, 21676.5, or 21677.”].)

While your February 8, 2019 Letter argues that only cities and counties can utilize the overruling authorities under the SAA, the language and legislative intent of the SAA does not support this interpretation. As stated above, and without expressly limiting the provisions to cities or counties, the SAA does not limit “the authority of *local agencies*” to overrule an ALUC’s actions or recommendations, and certainly does not limit that discretion to only local agencies with land use authority. (*See* Pub. Util. Code, § 21674.7(b).) Further, by using the term “local agency” in Sections 21676 and 21676.5 of the Public Utilities Code, and conversely and expressly using the term “city or county” in Section 21675.1(d) with respect to parallel provisions regarding overruling an ALUC’s determination, the legislature clearly intended that “local agencies” such as SMUD similarly have discretion to overrule the ALUC under Sections 21676 and 21676.5. (*See* Pub. Utilities Code, §§ 21674.7(b), 21675.1(d), 21676, 21676.5, and 21677 [allowing local agencies in Marin County to overrule an ALUC determination by a simple majority].) In fact, Solano County staff already conceded that “SMUD is a regulated entity by the ALUC and is similarly situated as any city or the County.” (Solano County ALUC Agenda Submittal for ALUC-17-10: SMUD Plan Amendment Request [File No. AC 17-035], October

12, 2017; see also *Suisun Alliance v. Suisun City* (2010) Solano Co. Sup. Ct. Case No. A125042, 2010 WL 3280273, at 4-5.) The Legislature clarified its intent that a local agency such as a special district has the ability to overrule the ALUC determination, as long as the local agency follows the proper procedure set forth in the SAA. (See Assembly Bill Analysis for AB 332 [May 2003], at p. 3.)

Broadly stated, the intent of the SAA is to minimize the risk to public health, safety, and welfare from exposure to excessive noise and safety hazards (i.e., aircraft accidents) and to ensure the orderly development and expansion of airports and surrounding areas. (Pub. Util. Code, § 21670(a); see also *Suisun Alliance*, 2010 WL 3280273 at 4-5.) Therefore, even if the ALUC provisions apply to the Project, SMUD has the authority under Sections 21676 and 21676.5 to overrule the ALUC’s consistency determination upon making the requisite findings, similar to any city or county.

Here, as discussed above, SMUD prepared an individual line-of-sight study for the Project and has obtained the FAA Determination of no significant hazard (including a confirmation from the FAA that its determination addresses the VFR routes and radar issues). As stated above, the ALUC did not file a petition challenging the FAA’s determination. Thus, even if the ALUC provisions applied to the Project, SMUD can overrule the ALUC inconsistency determination based on its own findings and the substantial evidence—including the FAA Determination—supporting its findings to overrule the ALUC. (*California Aviation Council v. City of Ceres* (1992) 9 Cal.App.4th 1384, 1393 [a court’s review of a local agency’s findings in support of its decision to overrule the ALUC is for substantial evidence].)

Pursuant to the exemption provisions under Section 53091 of the Government Code, the FAA’s no significant hazard determination, and SMUD’s ability to overrule any inconsistency determination the ALUC might render, SMUD’s NOP is accurate. Nevertheless, SMUD will be evaluating air-related hazards in its CEQA process, and is happy to work with Solano County and its ALUC to ensure that any safety considerations are addressed in the EIR.

Mr. Robert "Perl" Perlmutter
April 26, 2019
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Please do not hesitate to contact me if you have any questions or concerns regarding this letter.

Very truly yours,

DOWNEY BRAND LLP



Christian L. Marsh

cc: Ammon Rice, Environmental Management, Sacramento Municipal Utility District
Thomas Randall, Chair, Solano County Airport Land Use Commission
Lee Axelrad, Deputy County Counsel, Solano County

March 30, 2021

Ammon Rice
Sacramento Municipal Utility District
P.O. Box 15830, Sacramento, CA 95852-0830

Re: Response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC letter dated August 6, 2019

Mr. Rice,

This letter is in response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC dated August 6, 2019. In this letter, we address each of the points raised by Dr. Johnson.

1. *Dr. Johnson commented on air safety impacts as discussed in the draft environmental impact report (DEIR) and stated that it is well known that utility scale wind turbines impact primary surveillance radar systems when the turbines are located within the line of sight of the radar. Dr. Johnson stated that the existing turbines in the proposed project area have created turbine radar interference at Travis Air Force Base (AFB). To adjust, Dr. Johnson stated the AFB had to move/lose a circling approach and the AFB would like to reclaim the lost airspace.*

Utility scale wind turbines within line-of-sight of a primary surveillance radar, such as the Travis AFB digital airport surveillance radar (DASR), can have an adverse effect on radar performance. In fact, Travis AFB has served and continues to serve as an excellent source of information for the United States government and the wind industry in understanding the effects that multiple wind projects can have on a DASR and the display system used by the air traffic controllers, the Standard Terminal Automation System (STARS), at the Travis AFB Radar Approach Control (RAPCON) facility. Travis AFB and the wind projects in the Collinsville-Montezuma Hills Wind Resource Area (WRA) area also served as an excellent source of information in determining how to manage or lessen the effects of wind turbines for a DASR and STARS air traffic control systems configuration. Part of this work was conducted under Cooperative Research and Development Agreement (CRADA) No. 10-002 in collaboration with Travis AFB, Westslope Consulting, LLC (Westslope), and three wind project developers including the Sacramento Municipal Utility District (SMUD).^{1,2} It should also be noted that while there can be adverse effects on the DASR, the Monopulse Secondary Surveillance Radar (MSSR), which is the secondary surveillance radar co-located with the DASR and is the main radar used for air traffic control by the base, was shown to not be effected by wind turbines. The MSSR interrogates transponder equipment on board the vast majority of aircraft operating in and around the Travis AFB RAPCON's airspace.

¹ Air Mobility Command article at [Cooperative agreement forges solution for wind turbine projects at Travis AFB > Air Mobility Command > Article Display](#).

² United States Transportation Command Cooperative Research and Development Agreement, "Assessment of Wind Farm Construction on Radar Performance" Operations Working Group Research Conclusions and Recommendations Interim Report to Joint Technical Working Group dated January 20, 2010. Available at [blobdload.aspx \(solanocounty.com\)](#).

Secondary surveillance radar, such as the MSSR, are less susceptible to interference from wind turbines than primary surveillance radar. Unlike primary surveillance radar that depends on reflected energy to discern aircraft, secondary surveillance radar relies on, in general terms, two-way communication with aircraft via operating transponders. This process is cooperative whereby the secondary surveillance radar transmits a set of pulses at one frequency to interrogate transponders, then receives and processes replies from operating transponders at another frequency. Because of the use of different transmit and receive frequencies, secondary surveillance radar is not as susceptible to the effects of clutter that interfere with the performance of primary surveillance radar. Clutter is unwanted radar returns from the ground, rain or other precipitation, buildings, antenna towers, transmission lines, wind turbines, vehicular traffic, and birds. Some publicly available United States government research has considered the effects of wind turbines on secondary surveillance radar. A Department of Homeland Security (DHS) funded study conducted by JASON found that “[s]econdary (i.e., transponder, or “beacon”) tracks were rarely affected” by wind farms.³ JASON is a group of the nation’s top scientists that advise the United States government. In addition, the Department of Energy, Department of Defense (DoD), DHS, and the Federal Aviation Administration (FAA) sponsored flight trials conducted by Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL) and Sandia National Laboratories as part of an Interagency Field Test and Evaluation (IFT&E) program noted that “primary surveillance radars are severely impacted by wind turbines while the beacon transponder-based secondary surveillance radars was not affected by wind turbines.”⁴

The below excerpts are from the Solano 4 Wind Project (Solano 4) Determinations of No Hazard (DNHs) issued by the FAA originally on February 1, 2019, and after further DoD and FAA review, were recently extended on January 28, 2021.

“Simply being “seen” by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. Although there may be others entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.”

“The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.”

“However, this would not cause an unacceptable adverse impact on ATC operations at this time.”

³ JASON, MITRE Corporation, “Wind Farms and Radar,” January 2008, pp. 7. Available at [Wind Farms and Radar \(fas.org\)](http://WindFarmsandRadar.fas.org).

⁴ Sandia National Laboratories, MIT Lincoln Laboratory, “IFT&E Industry Report, Wind Turbine-Radar Interference Test Summary,” September 2014, pp. 32. Available at [SANDIA REPORT:SF 1075-SUR \(energy.gov\)](http://SANDIAREPORT.SF.1075-SUR.energy.gov).

“The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.”

“Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.”

The extension process resulted in the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the DoD Military Aviation and Installation Assurance Siting Clearinghouse (the “DoD Siting Clearinghouse”) mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations.⁵ The DoD Siting Clearinghouse was established under direction of the United States Congress per the National Defense Authorization Act for Fiscal Year 2011.⁶ The result of the MRT review was a conclusion by the 60th Air Mobility Wing of “[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations” and a conclusion by the DoD Siting Clearinghouse that Solano 4 “will not present an adverse impact to military operations.”^{7,8}

When evaluating the effects of wind turbines on radar, it is important to distinguish between effects and operational impacts. Effects do not always translate into operational impacts (i.e., a substantial adverse effect). As a result of early consultation with Travis AFB and Solano County’s Windfarm Re-Power Group dating back to April 21, 2016, SMUD and Westslope undertook a substantial effort to identify a wind project configuration—considering different wind turbine layouts, numbers of wind turbines, and wind turbine models—for Solano 4 to ensure there would be no additional effects as a result of the project on the DASR and on the air traffic controllers’ displays in STARS. In the spirit of collaboration, the results of multiple radar cumulative impact studies were presented to Travis AFB prior to filing the Solano 4 wind turbines with the FAA.⁹

Westslope’s studies indicate that removing and replacing 23 existing wind turbines with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter modern wind turbines will have no material difference to the DASR or on the air traffic controllers’ displays in STARS.

The Solano 4 wind turbines are located outside of Travis AFB circling approach areas and will have no effect on the base’s published visual flight rules (VFR) operations or on instrument flight rules (IFR) operations.¹⁰ Solano 4 will replace 23 existing Vestas V47 wind turbines, which currently interfere with the Travis AFB DASR, with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter wind turbines. Because construction of Solano 4 will result in fewer overall wind

⁵ [Welcome to the Military Aviation and Installation Assurance Siting Clearinghouse \(osd.mil\)](https://www.osd.mil/).

⁶ [H.R.6523 - 111th Congress \(2009-2010\): Ike Skelton National Defense Authorization Act for Fiscal Year 2011 | Congress.gov | Library of Congress](https://www.congress.gov/111/legislation/6523).

⁷ Letter from the 60th Air Mobility Wing Commander dated January 11, 2021. On file.

⁸ Letter from the DoD Military Aviation and Installation Assurance Siting Clearinghouse dated February 9, 2021.

⁹ See SMUD Solano 4, Cumulative Impact Study and Mitigation Solution Results for Vestas V136 and V150 Wind Turbine Layouts dated September 6, 2018.

¹⁰ In accordance with FAA Order 8260.3D and FAA Order 8260.58A.

turbines and the proposed wind turbines will have no effect on the base's published VFR or IFR operations, Solano 4 will have no material difference on the performance of the DASR and STARS configuration compared to current conditions and will not impact current RAPCON air traffic operations. Further, the secondary surveillance radar co-located with the DASR, which is the main radar used for air traffic control, will not be affected. These conclusions regarding impacts are supported by the MRT process and FAA's DNHs that state that the Solano 4 wind turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation."

2. *Dr. Johnson stated that the DEIR does not include information needed to inform decision makers and the public about the scope of the project's impacts. Dr. Johnson notes that the DEIR refers to an FAA aeronautical study conclusion that navigable airspace is not affected by turbine operation, but the DEIR does not mention that the study also reports that quality and availability of radar signals would be affected. Dr. Johnson further commented that when wind turbine radar interference (i.e., clutter) is high, air traffic controller workloads can increase due to the creation of track duals (false tracks), which increase the need for more coordination between controllers and pilots and greater distances among aircraft, and may impact aircraft maneuvers.*

The DEIR focused on the conclusion of the aeronautical study process rather than FAA's initial findings. As pointed out by Dr. Johnson, the FAA's initial findings state that the "[t]he proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines." This language is standard language used by the FAA for any wind turbine that is within line-of-sight of a primary surveillance radar and is used to inform the proponent of a wind project that further study is required to determine whether these effects could result in operational impacts.

After in-depth study, at the request of SMUD, the FAA determined that Solano 4 "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation". Further, the DNHs state that the aeronautical studies "considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact" resulting from Solano 4 when combined with the impact of other existing structures.

Regarding "track duals", Dr. Johnson may be confusing this term with "false targets." Track duals and false targets are two different effects. It is also possible that Dr. Johnson may be confusing track duals with a phenomenon identified during testing of in-fill radar ongoing at Travis AFB at this time.

While false primary targets are possible, replacing the 23 existing wind turbines with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter modern wind turbines will have no material difference in the number of false primary targets reported by the DASR or in the number of the false primary tracks on the air traffic controllers' displays in STARS. After construction, system optimization, including updating the range-azimuth gate map in the DASR, will address the

difference in the location and number of wind turbines. In other words, the conditions under the Solano 4 Wind Project would not be any different than the current condition.

3. *Dr. Johnson's comment that while the DEIR indicates that the wind turbines would not be a hazard to air navigation if the turbines are properly painted and lighted, these are measures for obstruction avoidance and would not mitigate the turbines' interference with radar or air traffic control.*

Per the FAA issued DNHs, Solano 4 "would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft" and "would not be a hazard to air navigation" provided the wind turbines are marked/lighted in accordance with FAA Advisory Circular 70/7460-1 L Change 2, Obstruction Marking and Lighting. This advisory circular provides the FAA's standard for marking and lighting to ensure the appropriate daytime and nighttime conspicuity so that pilots can visibly see and avoid wind turbines.

The FAA and SMUD, in Mitigation Measure 3.7-3, are not suggesting that marking and lighting is a radar mitigation.

4. *Dr. Johnson stated that the DEIR does not mention that Air Traffic Control (ATC) Minimum Vectoring Altitudes (MVAs) for the turbine area would need to be increased and that the FAA has identified this as an adverse effect.*

During the aeronautical study process, the FAA's prime objective is to ensure the safety of air navigation and the efficient utilization of navigable airspace.¹¹ As many as ten different government offices take part in each study, including: the FAA's Office of Airports, Instrument Flight Procedures Impact Team, Flight Standards, Technical Operations, and Frequency Management, and the United States Air Force, United States Navy, United States Army, DHS, and the DoD. The FAA utilizes the information provided by each office, as well as defined metrics, to determine whether or not the proposed wind turbines would be hazardous.¹²

During the review of Solano 4, the FAA identified that the proposed wind turbines would have an adverse effect on a minimum vectoring altitude (MVA) sector. A MVA defines the lowest altitude that air traffic controllers can normally issue radar vectors to aircraft and is based on obstacle clearance. Specifically, the FAA identified an effect on Sector MCC_B which is utilized by the air traffic controllers at Northern California Terminal (NCT) Radar Approach Control (TRACON). To address this effect, the FAA requires Form 7460-2, Part 1, Notice of Actual Construction or Alteration to be submitted at least 60 days before the start of construction so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary. By SMUD e-filing FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration at least 60 days before the start of construction, the FAA would take appropriate action to amend the affected procedure(s) and/or altitude(s), if necessary." The FAA will modify Sector MCC_B by increasing the MVA from 1,700 to 1,800 feet above mean sea level (MSL). This increase ensures the appropriate obstacle clearance and, as a result, maintains safety.¹³ This amendment to modify the sector by increasing the MVA to 1,800 feet MSL removes the adverse effect on the MVA sector. Lastly, Northern

¹¹ FAA Order 7400.2M Paragraph 6-3-1(a) "Policy."

¹² FAA Order 7400.2M Paragraph 6-3-3(a) "Determining Adverse Effect" with reference to aeronautical study number 2018-WTW-13388-OE.

¹³ FAA Order 8260.3D Paragraph 11-3-3 "Obstacle Clearance."

California TRACON confirmed that this would not have an operational impact on providing radar vectoring services. For these reasons, the effect on a MVA sector will not result in the degradation of safety or efficiency.

5. *Dr. Johnson commented that while the DEIR acknowledges that the project could have potentially significant adverse impacts, it does not provide enough information about the impacts for readers to comprehend them. Dr. Johnson states that the DEIR should 1) discuss objective metrics regarding the effects on radar performance, 2) compare clutter tracks over the wind turbine area with the additional clutter that would be generated by the new turbines, 3) compare expected dual tracks with real targets and provide metrics such as length measured over a span of time, and 4) discuss increased operator workload (controllers and pilots) due to clutter and provide metrics regarding this.*

As stated above, SMUD undertook extensive efforts to identify a wind project configuration for Solano 4 to ensure there would be no additional effects as a result of the project on the DASR and on the air traffic controllers' displays in STARS. Results of an initial cumulative impact study conducted by Westslope, employing the same method verified under CRADA No. 10-002 and using primary probability of detection (Pd) as a metric, showed that the 22 136-meter rotor diameter wind turbines will result in a 0.1 percent overall decrease in the primary Pd over the Collinsville-Montezuma Hills WRA. A subsequent cumulative impact study for 19 150-meter rotor diameter wind turbines at the proposed locations showed no drop in the primary Pd. In other words, the conditions under Solano 4 will result in no material difference on the performance of the DASR and STARS configuration compared to existing conditions. These findings were presented to Travis AFB on September 6, 2018 and were used to support the current layouts proposed for the Solano 4 wind turbines.

As determined by the FAA and stated in the Solano 4 DNHs "the turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines." The DNHs conclude, "[h]owever, this would not cause an unacceptable adverse impact on ATC operations at this time."

The number of false primary targets reported by the DASR and the number of false primary tracks presented on the STARS' displays were also considered as a metric during these studies; however, based on Westslope's experience with the Travis AFB DASR and STARS, as well as other similar facilities, and the fact that Solano 4 will replace 23 existing wind turbines with 22 or 19 new wind turbines, Westslope expects no material difference in the number of false primary targets out of the DASR or the number of false primary tracks on the STARS' displays. As stated above, the result of the MRT review was a conclusion by 60th Air Mobility Wing Commander of "[a]s proposed, Solano 4 should have minimal negative impact on Travis Operations" and a conclusion by the DoD Siting Clearinghouse that Solano 4 "will not present an adverse impact to military operations." The FAA determined that the proposed Solano 4 wind turbines "would not cause an unacceptable adverse impact on ATC operations at this time" and "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met." Further, SMUD received extensions for the 19 DNHs for Solano 4 on January 28, 2021, as requested.

6. *Lastly, Dr. Johnson stated that the DEIR does not discuss other potentially feasible means to mitigate the project's adverse impacts, such as a Pilot Mitigation Program at Travis AFB that is studying how in-fill radar systems could mitigate turbine radar interference, or an effort that is underway to develop radar processing algorithms that could reduce clutter on air traffic control screens. Dr. Johnson notes that these are not yet proven or certified for use, and so the only way to limit turbine impacts on radar systems is to locate the turbines beyond the line-of-sight of the radar.*

As discussed above and in the cumulative impact studies conducted by Westslope, the Solano 4 wind turbines will result in no material difference on the performance of the DASR and STARS configuration compared to existing conditions, and will not impact current RAPCON air traffic operations. Further, the secondary surveillance radar co-located with the DASR, which is the main radar used for air traffic control, will not be affected. These conclusions are supported by the FAA's DNHs that states that the Solano 4 wind turbines "would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation".

Please direct any questions to Geoff Blackman of Westslope Consulting at gnblackman@westslopeconsulting.com or Joe Anderson of Capitol Airspace Group at joe.anderson@capitolairspace.com.

Respectfully,

A handwritten signature in black ink, appearing to read 'G. Blackman', written over a horizontal line.

Geoffrey N. Blackman
Owner/Principal
Westslope Consulting, LLC

Joe Anderson
Director of Airspace Consulting
Capitol Airspace Group, LLC

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SUMMARY

Founded Westslope Consulting, LLC in 2008. Provides radar consulting and technical services to developers of wind energy projects, commercial real estate projects including high-rises, event venue and stadium projects, transmission line projects, and solar energy projects in the United States, Canada, and overseas.

Over 26 years of experience in the United States working with radar and associated tracking and display systems and is considered a subject matter expert on the potential effects of wind turbines on air traffic control radar, air defense radar, homeland security radar, weather radar, over-the-horizon drug interdiction radar, and test-range instrumentation radar.

Works with developers at all stages of project development. In the early stages of project planning to identify potential radar concerns as well as other potential aviation, military, and weather-related operational concerns. In the late stages of development as projects move through the approval process at local, state, and federal levels. This work includes conducting radar studies, identifying impacts, outlining mitigation techniques and strategies, modeling, simulation, data analysis, optimization, flight tests, and defining and testing software and/or hardware changes.

Engages with military bases, BOEM, DoD Siting Clearinghouse, DHS Long Range Program Office, FAA Obstruction Evaluation Group, NOAA, NORAD, NTIA, WSR-88D Radar Operations Center, and national laboratories on behalf of clients and the wind industry.

Supports hearings and meetings at various levels of government.

Technical expertise spans multiple navigation and surveillance systems including airport surveillance radar, long range radar, secondary surveillance radar, ADS-B and multilateration systems, in-fill wind farm mitigation radar, navigational aids, precision approach radar, coastal HF radar, Aircraft Detection Light Systems, bird and bat radar, over-the-horizon radar, weather radar, and associated tracking and display systems.

EDUCATION

University of Leeds – Leeds, England

September 1991 to July 1994

Bachelor of Engineering with Honors in Electronic Engineering with a concentration in Microwave Engineering.

PROFESSIONAL EXPERIENCE

Westslope Consulting, LLC – Norman, OK

Founder, Owner, and Principal

May 2008 to present

- Provides mitigation studies and negotiates mitigation agreements with various federal agencies and third parties.
- Develops data analysis and modeling tools to assess for radar effects and identify possible mitigation solutions.
- Serves as the wind industry technical representative to the DOE Wind Turbine Radar Interference Mitigation Working Group.
- Consults with American Clean Power Association regarding wind-radar policy, process, and technical issues.
- Served as a subject matter expert in over 20 FAA safety risk management panels involving radar-related hazards as a result of wind development.
- Worked hand-in hand with the DHS to identify and site in-fill radar mitigation and draft agreements to resolve border security concerns.
- On behalf of wind developer, supported first exercise modeling the impacts of wind turbines on Relocatable Over-the-Horizon Radar working with the United States Navy and MIT/LL.
- Provided expert witness testimony relating to impacts to United States and Canadian weather radar.
- Supported the DoD, DOE, DHS, and FAA Interagency Field Test and Evaluation.
- Served as Radar Working Group lead under the first Cooperative Research and Development Agreement with United States Transportation Command and three wind developers successfully improving DASR radar performance over approximately 600 wind turbines near Travis AFB. This work included implementing and validating a proprietary Westslope Consulting modeling method for predicting the impacts of wind energy projects, integrating two adjacent radar sites into STARS, several iterative optimization changes, third party evaluation of wind farm mitigation, and flight testing.
- Served as the wind industry representative for the DHS radar and wind turbines interaction modeling tool.
- Served as a technical advisor for wind developer in negotiations of first Memorandum of Agreement with the DoD and United States Navy.

Regulus Group, LLC – Woodstock, VA

Partner, Senior Engineer, and Consultant

September 2003 to May 2008

- On behalf of the FAA, supported DoD testing at King Mountain, Texas during the ARSR-4 long range radar wind turbine interference and mitigation study.

- At the request of Idaho National Laboratory, served as a technical advisor for the 2008 JASON Report JSR-08-125 Wind Farms and Radar.
- Supported Idaho National Laboratory at wind-radar intra-agency meetings to further understanding of radar impacts and existing and potential mitigation techniques.
- Led FAA working group to study potential impacts on the ASR-11 and co-located MSSR (referred to as the DASR by the United States Air Force) and VOR from a proposed wind energy project near Ted Stevens International Airport. Identified potential impacts, outlined mitigation strategies, simulated and modeled potential impacts and mitigation techniques, analyzed data, and defined and tested software changes.
- Managed field engineering activities including maintenance and troubleshooting, system optimization and commissioning flight inspection for the FAA ASR-11 Program Office.
- Developed ASR-11 Optimization Procedures and ASR-11 Optimization Training Course. Conducted training courses and on-the-job training for various government agencies and radar manufacturer.
- Led and participated in numerous detailed investigations into ASR-11 performance issues. Instrumental in defining, modeling, testing, analyzing, and implementing new algorithms and algorithm enhancements to the ASR-11 software to improve performance.
- Co-developed Radar Toolbox, a FAA software radar analysis tool.
- Supported the assessment of radar concerns for the FAA regarding real estate development projects and wind projects.

Fesler Technical Services – Oklahoma City, OK

Principal Engineer

July 2002 to September 2003

Senior Engineer

May 2000 to July 2002

- Managed engineering activities including maintenance and troubleshooting, system optimization, commissioning flight inspection, and test and evaluation support to FAA ASR-11 Program Office.
- Assigned to National Airways System Engineering Division to provide systems engineering support. Provided coordination between FAA ASR-11 Program Office and DoD DASR Program Office.
- FAA point of contact for test and evaluation of ASR-11 weather channel. Worked with MIT/LL to complete Developmental Test and Evaluation.
- Participated in FAA's Pre-Operational Test and Evaluation and Operational Test and Evaluation at Stockton, California. Assessed radar performance to ensure operational suitability. Modeled algorithms to investigate potential software changes. Developed enhancements to improve system performance. Coauthored several data processing algorithm enhancements required by the FAA.

PUBLISHED WORKS/PRESENTATIONS

- *Radar Mitigation in the U.S.*, presented at the Canadian Wind Energy Association 2012 Conference and Exhibition, October 15, 2012.

- *Wind and Radar Introduction and Mitigation Overview*, presented at the International Wind and Radar Forum, Canadian Wind Energy Association, June 29, 2011.
- *Military, Radar, and Aviation Issues: Growing Concerns and Ways to Navigate Potential Problems*, presented at WINDPOWER 2010 Conference and Exhibition, American Wind Energy Association, May 24, 2010
- *Introduction to the Issues*, presented at the State of the Art in Wind Siting Seminar, National Wind Coordinating Collaborative, October 21, 2009.
- *Candidate Solutions*, presented at the State of the Art in Wind Siting Seminar, National Wind Coordinating Collaborative, October 21, 2009.
- *Overview of Mitigation Efforts at Wind Projects in the UK and US*, presented at the WINDPOWER 2009 Conference and Exhibition, American Wind Energy Association, May 7, 2009.
- *Long Range Radar Technical Discussion*, Competition for the Sky, FAA, September 29-October 2, 2008.
- *Issues, Wind Turbine Clutter, I/Q Data, Detection and Track Eligibility, and Modeling Tools*, Competition for the Sky, FAA, September 29-October 2, 2008.
- *Radar Issues: A Developer's Perspective*, presented at the WINDPOWER 2008 Conference and Exhibition, American Wind Energy Association, June 1-4, 2008.
- *Technology Update and Mitigation Options*, presented at the Wind Energy Project Siting Workshop, American Wind Energy Association, February 14-15, 2008.
- *Fire Island Wind/Radar*, presented at the WINDPOWER 2007 Conference and Exhibition, American Wind Energy Association, June 3-6, 2007.
- *Fire Island Wind Turbine Project*, 51st Annual Conference Proceedings, Air Traffic Control Association, October 2006.

HONORS/AWARDS

- *Thank you letter*, Brigadier General Steven J. Lepper, February 2010.
- *Thank you letter*, Congressman John Garamendi, CA-10, February 2010.
- *Award for Exemplary Performance*, FAA ASR-11 Program Office, August 2009.
- *Letter of Appreciation*, FAA ASR-11 Program Office, May 2008.
- *Letter of Appreciation*, FAA ASR-11 Program Office, June 2007.
- *ASR-11 Team Award*, FAA ASR-11 Program Office, November 2005.

PROFESSIONAL AFFILIATIONS

- IEEE, Member
- IET, Member

CITIZENSHIP

- United States

Joe (Alton) Anderson

Phone: (571) 297-6507

E-mail Address: joe.anderson@capitolairspace.com

Experience

Capitol Airspace Group

Alexandria, Virginia

Director of Airspace Consulting, January 2020 to present

- Supporting 250+ projects throughout the United States, including consulting on the development of event stadiums, high-rise buildings, utility-scale wind projects, and moored aerostats.
- Developing unique strategies that strike a balance between the needs of economic development and the need to protect the National Airspace System.
- Providing expertise in instrument procedure design, optimization, and impact mitigation.
- Mitigating interference with military training routes and special use airspace.
- Assisting in development of Project Manager training program.

Senior Project Manager, July 2016 to December 2019

- Cultivated and grew portfolio to include 100+ development projects.
- Coordinated project details, including development constraints, to determine technical support that would lead to resolving identified airspace impacts.
- Assisted in business development, including redesigning company website, updating relevant social media platforms, and creation of educational “aeronautical study” video.

Senior Airspace & GIS Specialist, September 2015 to July 2016

- Developed analytical processes and Python-based automation to assess historical air traffic operations and climatological data in order to evaluate risks to proposed development.
- Developed Python-based GIS automation to:
 - improve efficiency of obstruction evaluation and airspace analyses, and
 - analyze frequency of nighttime flight operations in proximity to proposed wind turbines; findings utilized by wind developers to determine cost efficacy for lighting control systems.
- Designed new instrument approach procedures, in a challenging obstacle environment, that allowed for an airport operator to maintain procedure minimums while allowing for proposed development.
- Participated in FAA’s Aeronautical Charting Meeting Instrument Procedures Group (IPG)
- Assisted in recruitment and training of Airspace Specialists

Airspace Specialist, June 2014 to September 2015

- Prepared written reports, with supporting methodology and easy-to-interpret graphics, that described the potential impact of development on the National Airspace System, including the evaluation of instrument flight rules (IFR) and visual flight rules (VFR) air traffic operations; conducted in accordance with FAA Orders 8260.3 and 8260.58.
- Provided verbal briefings regarding findings of analytical studies, including descriptions of airspace, usage, and impacts.
- Analyzed “notice requirements” for proposed development in accordance with 14 CFR 77.9.
- Implemented procedures for consistent graphics and report writing

Embry-Riddle Aeronautical University

Daytona Beach, Florida

Graduate Teaching Assistant, January 2013 to June 2014

- Mentored Air Traffic Control (ATC) students and created teaching scenarios for three high-fidelity simulation classes
- Assisted with learning analytics, Aviation Accreditation Board International (AABI) processes, and managing of department’s web presence.

Education

Embry-Riddle Aeronautical University

Daytona Beach, Florida

Master of Science in Aeronautics, 2014

- Treasurer, Student Government Association

Bachelor of Science in Air Traffic Management, 2012

- Founder of Air Traffic Honor Society

**CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS AND
STATEMENT OF OVERRIDING CONSIDERATIONS
IN CONNECTION WITH
SOLANO 4 WIND PROJECT
SACRAMENTO MUNICIPAL UTILITY DISTRICT**

I. Introduction

The Sacramento Municipal Utility District (SMUD) is lead agency under the California Environmental Quality Act (CEQA) for purposes of the Solano 4 Wind Project, hereafter Solano 4 Wind or the project. CEQA prohibits an agency from approving or carrying out a project for which significant effects have been identified, unless the agency can make one or more of a set of three findings set forth in Public Resources Code (PRC) section 21081, subdivision (a):

- (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
- (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
- (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report. (See also California Code of Regulations [CCR] Title 14, section 15091.)

When significant effects are subject to a finding under paragraph (3) of subdivision (a), it means that a significant and unavoidable environmental impact would result from project implementation. If this occurs, the public agency must find that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment, if the agency approves the project. (PRC section 21081, subd. (b).)

CEQA requires public agencies to prepare a program for monitoring or reporting on the revisions which it requires in the project and the measures it has imposed to mitigate or avoid significant environmental effects. (CCR Title 14, section 15097, subd. (a).)

Under PRC section 21002.1, subdivision (d), when issuing an approval for an aspect of a project for which a lead agency has performed CEQA review, a responsible agency



considers only the aspects of the project that the agency is required by law to carry out or approve. SMUD therefore provides the following CEQA findings and mitigation monitoring and reporting program (MMRP) (Attachment 1) that concern potentially significant impacts to resources identified by the lead agency as part of the CEQA review and in fulfillment of CCR Title 14, section 15097, subd. (a).

II. CEQA Compliance

SMUD, as the lead agency pursuant to CEQA, has prepared a Draft and Final Environmental Impact Report (EIR) for the proposed Solano 4 Wind Project (project). The project involves the decommissioning of existing wind turbine generators (WTGs); construction of new, more technologically advanced WTGs, an associated electrical collection system, and access roads, along with minor upgrades to the existing Russell Substation; and operation and maintenance of the new WTGs. The SMUD Board of Directors (Board) hereby issues these Findings and concurrently certifies the Solano 4 Wind Project EIR.

The EIR has been assigned State Clearinghouse Number 2019012016. The Final EIR consists of amendments to the Draft EIR through responses to comments, and formal responses to comments received on the Draft EIR; minor corrections, clarifications, and revisions; and a MMRP. The Draft EIR assesses the potential environmental effects of implementation of the Solano 4 Wind Project, identifies the means to eliminate or reduce potentially significant adverse environmental impacts, and evaluates a reasonable range of alternatives to the project.

Pursuant to PRC section 21081 and CCR Title 14, section 15090, the Board hereby certifies that it completed the following activities prior to taking action related to activities evaluated under the Solano 4 Wind Project EIR: the Board has received the Final EIR; the Board has reviewed and considered the information contained in the Final EIR and received through public comments; and the Board has considered all additional written and oral statements received prior to or at its public hearing on the Final EIR. The Board additionally certifies that the Final EIR was completed in compliance with CEQA (PRC section 21000 et seq.), the CEQA Guidelines (CCR Title 14, section 15000 et seq.), and SMUD's policies and procedures for the implementation of CEQA and that the Final EIR reflects SMUD's independent judgment and analysis. The conclusions presented in these Findings are based on the Final EIR and other evidence in the administrative record. The findings set forth below pertain to the certification of the EIR for the Solano 4 Wind Project.

III. Findings

Having received, reviewed, and considered the Final EIR and all other information in the administrative record, the Board hereby adopts the following Findings for the Solano 4 Wind Project EIR in compliance with CEQA, the CEQA Guidelines, and SMUD's procedures for implementing CEQA. The Board adopts these Findings and Statement of



Overriding Considerations in conjunction with its approval of the Solano 4 Wind Project EIR, as set forth below.

a. Project Description and Background

Sacramento Municipal Utility District (SMUD) is proposing the Solano 4 Wind Project (project). The project would involve:

- decommissioning of existing wind turbine generators (WTGs);
- construction of new, more technologically advanced WTGs, an associated electrical collection system, and access roads, along with minor upgrades to the existing Russel Substation; and
- operation and maintenance of the new WTGs.

Project Objectives

SMUD's objectives for the project include the following:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity, and reduce SMUD's exposure to price volatility associated with electricity and natural gas.
- Assist SMUD in achieving the Board of Directors' directive of using dependable renewable resources to meet SMUD's renewable portfolio standards (RPS) obligations. This goal is consistent with Senate Bill 100, which was enacted in 2018.
- Develop an economically feasible wind project that will deliver a reliable supply of up to 91 MW of electrical capacity at the point of interconnection with the grid managed by the California Independent System Operator (CAISO).
- Accommodate the long-term viability of agricultural use within the Montezuma Hills.

Project Location

The project site is located within the Solano County Wind Resource Area (WRA) in southern Solano County. The WRA lies north of the confluence of the Sacramento and San Joaquin rivers and southwest of the city of Rio Vista.

The project site comprises two geographically distinct areas owned by SMUD, Solano 4 East and Solano 4 West, and the collection and home run lines, which total 2,549 acres. State Route (SR) 12 provides regional access to the project area. Montezuma Hills Road and Birds Landing Road provide local access to Solano 4 East, while Collinsville Road and Shiloh Road provide local access to Solano 4 West.



Topography and Natural Habitat

The WRA consists of a series of gently rolling hills of similar texture and size. The hills crest at a relatively constant elevation, generally 150–250 feet above mean sea level. Valleys in the project area transition to sloped hillsides with relatively flat ridgelines.

The vegetation in the WRA and the project area is generally monotypic (annual grassland or dryland farming) and is mostly treeless. The few trees in the Montezuma Hills are mostly nonnative and are associated with rural farmsteads. Permanent and seasonal wetlands occur on the project lands and adjacent to Suisun Marsh; some of the land has been reclaimed with levees. Vegetation is primarily pasture and grain crops, with intermittent wetland swales and sporadic eucalyptus windbreaks. Varied shrub vegetation is present only in the drainage swales and around existing and abandoned settlements. Native vegetation is limited; most of the area is nonnative annual grassland. Some of the lowland vegetation includes native willows, blackberry, rushes, and tules. Marsh vegetation is present in some of the shallow sloughs, which drain portions of the project area into the Sacramento River to the south.

Existing Land Uses

The project area is designated for agricultural use and leased for dryland farming and grazing. The water-dependent industrial zoning of the WRA and the properties' covenants, conditions, and restrictions preclude new residential development in the WRA. Visible developments include electric transmission towers, and WTGs on the surrounding hilltops.

Except for the home run lines (cable or conductor taking power from the site to the substation) running between the two main WTG project subareas (Solano 4 East and Solano 4 West) and the Russell Substation, all project facilities would be constructed on land owned by SMUD. Solano 4 East is dominated by nonnative grasslands and used for seasonal livestock grazing and rotational dry cropland farming. Solano 4 East also currently supports Solano Phase 1, which includes 23 Vestas V-47 WTGs, gravel pads and roads, underground collection lines, and pad-mounted transformers. Solano Phase 1 would be decommissioned and removed as part of this project.

Solano 4 West is dominated by nonnative grasslands and used for seasonal livestock grazing and rotational dry crop farming. A portion of Solano 4 West previously supported 59 Kenetech KCS-56-100 WTGs and contains gravel access roads, and underground collection lines and other infrastructure associated with this earlier wind development project. However, the WTGs and their associated infrastructure reached their end of life. Accordingly, the WTGs were removed in 2019 as part of a separate and independent project. The project owner plans to abandon the underground infrastructure in place. Existing access roads that would not be repurposed for use at the Solano 4 Wind Project would be reclaimed and restored to land suitable for agriculture or grazing. Exhibit 2-3



and Exhibit 2-4 show existing and past land uses on the properties, including WTGs and soil disking in preparation for spring planting.

Project Characteristics

With the Solano 4 Wind Project, SMUD would construct up to 22 new WTGs: up to 10 in Solano 4 East and up to 12 in Solano 4 West. The project would have a net energy production capacity of up to 91 MW, resulting in a net increase in capacity at the Solano Wind Project from the existing 230 MW to 306 MW. Individual WTGs would have a maximum height of 492 to 590 feet (150 to 180 meters) and a maximum rotor diameter of 446 to 492 feet (136 to 150 meters). Associated access roads and collection lines would be installed to support the new WTGs. Power generated by the new WTGs would be transmitted from Solano 4 East and West to the point of interconnection with the CASISO grid at the existing Russell Substation on Montezuma Hills Road via new, underground direct-buried electrical cable. The power would be distributed from the substation via the adjacent Birds Landing Switching Station through the existing 230-kilovolt Vaca–Dixon–Contra Costa transmission line (two circuits), which runs through the WRA.

b. Absence of Significant New Information

CEQA Guidelines Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the draft EIR but before certification. New information includes: (i) changes to the project; (ii) changes in the environmental setting; or (iii) additional data or other information. CEQA Guidelines Section 15088.5 further provides that “[n]ew information added to an EIR is not ‘significant’ unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project’s proponents have declined to implement.”

Comments received on the Draft EIR expressed a range of CEQA and non-CEQA issues, as discussed in Chapter 2, “Comments and Responses to Comments,” of the Final EIR. Each comment has been responded to in the Final EIR and none of the comments triggered the need to recirculate the Draft EIR.

Having reviewed the information contained in the Draft and Final EIR, and in the administrative record, including all comments received, as well as the requirements under CEQA Guidelines Section 15088.5 and interpretive judicial authority regarding recirculation of draft EIRs, the Board hereby finds that no significant new information was added to the Draft EIR after the public review period. The Board specifically finds that: no new significant environmental impact would result from the Solano 4 Wind Project or from the implementation of a mitigation measure; no substantial increase in the severity of an environmental impact would result, or if such an increase would result, SMUD has



adopted mitigation measures to reduce the impact to a level of insignificance; SMUD has not declined to adopt any feasible project alternative or mitigation measures considerably different from others previously analyzed that would clearly lessen the environmental impacts of the Solano 4 Wind Project; and the Draft EIR is not so fundamentally and basically inadequate in nature that it precluded meaningful public review.

Having reviewed the information in the Draft EIR, Final EIR, and administrative record, the Board finds that no new significant information was added to the EIR following public review, and recirculation of the EIR is therefore unnecessary and not required by CEQA.

c. Environmental Impacts Summary

As required by CEQA and the CEQA Guidelines, the following section summarizes the direct, indirect, and cumulative environmental impacts of the project identified in the Final EIR and includes the Board's Findings regarding those impacts and any mitigation measures set forth in the Final EIR, adopted by the Board, and incorporated as requirements of the project. These Findings summarize the determinations of the Final EIR with respect to the project's impacts before and after mitigation and do not attempt to describe the full analysis of each environmental impact considered in the Final EIR. Instead, the Findings provide a summary of each impact, describe the applicable mitigation measures identified in the Final EIR and adopted by the Board, and state the Board's Findings regarding the significance of each impact with the adopted mitigation measures. The Final EIR contains a full explanation of each impact, mitigation measure, and the analysis that led SMUD to its conclusions on that impact. These Findings hereby incorporate by reference the discussion and analysis in the Final EIR, which support the Final EIR's determinations regarding the project's environmental impacts and mitigation measures. In making these Findings, the Board ratifies, adopts, and incorporates by reference the Final EIR's analysis, determinations, and conclusions relating to environmental impacts and mitigation measures. The substantial evidence supporting these findings and conclusions are set forth in the Final EIR and the record of proceedings.

The Board hereby adopts, and incorporates as conditions of approval, the mitigation measures set forth in the findings below to reduce or avoid the potentially significant impacts of the project. In adopting the mitigation measures described below, the Board intends to adopt each of the mitigation measures recommended in the Final EIR. Accordingly, in the event that a mitigation measure recommended in the Final EIR has been inadvertently omitted from these Findings, that mitigation measure is hereby adopted and incorporated by reference in the Findings. Additionally, in the event that the description of mitigation measures set forth below fails to accurately capture the substance of a given mitigation measure due to a clerical error (as distinct from specific and express modification by the Board through these Findings), the language of the mitigation measure as set forth in the Final EIR shall govern.

1. Significant and Unavoidable Adverse Impacts and Related Mitigation Measures

Pursuant to PRC section 21081(b) and CEQA Guidelines section 15093, where the lead agency identifies significant adverse environmental impacts that cannot feasibly be mitigated to a less-than-significant level, the lead agency may nonetheless approve the project if it finds that specific economic, legal, social, technological, or other benefits of the project outweigh the unavoidable significant environmental impacts.

After implementation of the recommended mitigation measures, implementation of the Solano 4 Wind Project would result in the following significant and unavoidable impacts:

Air Quality

Impact 3.2-1: Construction-related exceedance of thresholds of significance established by the air districts for criteria air pollutants. Project construction activities would emit NO_x and PM₁₀ at levels that could exceed YSAQMD and BAAQMD daily emissions thresholds for these pollutants.

Mitigation Measure 3.2-1: Reduce construction-related exhaust and dust emissions. The construction contractor shall prepare a fugitive dust control plan for the project's construction phases. Before the start of construction, the plan shall be submitted to YSAQMD and BAAQMD for review and approval. The fugitive dust control plan shall include but not be limited to the following measures for all construction phases to reduce fugitive dust emissions and emissions of PM and NO_x exhaust:

Fugitive Dust Control Plan

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent (at least two times per day). Moisture content can be verified by lab samples or moisture probe.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and wind turbine generator foundations and work areas to be paved or graveled shall be completed as soon as possible. These areas shall be paved or graveled as soon as possible after grading.

unless seeding or soil binders are used. No recycled concrete will be utilized on the roadways.

- Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 2 minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition before operation.
- A publicly visible sign shall be posted identifying the name and telephone number of the person to contact at SMUD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air districts' phone numbers shall also be visible to ensure compliance with applicable regulations.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the surface area disturbed at any one time.
- All trucks and equipment, including their tires, shall be washed off before leaving the site.
- Site access areas shall be covered with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel to a distance of 100 feet from the paved road.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- The project shall develop a plan demonstrating that off-road equipment exceeding 50 horsepower) to be used in the construction project (owned, leased, and subcontractor vehicles) would achieve project-wide, fleet-average emissions reductions of 20 percent for NOX and 45 percent for PM, compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment

products, add-on devices such as particulate filters, and/or other options as they become available.

- Low-VOC (i.e., ROG) coatings shall be used beyond local requirements (Regulation 8, Rule 3, “Architectural Coatings”).
- All construction equipment, diesel trucks, and generators shall be equipped with best available control technology for reduction of NOX and PM emissions.
- All contractors shall use equipment that meets ARB’s most recent certification standard for off-road heavy-duty diesel engines (BAAQMD 2017:Tables 8-2 and 8-3).

Finding: The Board finds that changes or alterations have been required in, or incorporated into, the project that substantially lessen these potentially significant impacts as identified in the EIR, however implementation of the Solano 4 Wind Project would still create significant and unavoidable construction emissions of criteria air pollutants and ozone precursors. Specific economic, legal, social, technological, or other considerations make infeasible additional mitigation measures or project alternatives identified in the EIR.

2. Issues for which the project would have a Less-than-Significant Impact with Project-specific Mitigation Measures Incorporated

Pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), SMUD finds that changes or alterations have been required or incorporated into the project to avoid or substantially lessen the following potentially significant impacts identified in the Final EIR to a less-than-significant level.

Aesthetics

Impact 3.1-2: Creation of new sources of substantial light or glare that would adversely affect day or nighttime views in the area. Project construction and operation would introduce permanent sources of light and glare, mainly to comply with FAA safety lighting requirements.

Mitigation Measure 3.1-2: Use Technology to Reduce Night Sky Impacts. To reduce the potential for visual impacts associated with lighting, lighting for the turbine doorways shall be limited to the illumination required for safety of personnel and security of project infrastructure. To minimize the effect of light pollution in the surrounding area, all lighting shall be motion-activated and downcast.

To minimize night sky impacts from hazard navigation lighting associated with wind facilities, ADLS technology will be employed as described in the FAA



Determination of No Hazard. ADLS is a radar-based obstacle avoidance system that activates obstruction lighting and audio signals only when an aircraft is close to an obstruction on which an ADLS unit is mounted, such as a wind turbine.

Finding: The Board finds that implementation of the Solano 4 Wind Project would introduce new sources of light associated with new WGTs. Adoption and incorporation of Mitigation Measure 3.1-2 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact to less-than-significant level.

Biological Resources

Impact 3.3-1: Temporary and permanent construction impacts on special-status amphibians and reptiles. Special-status amphibians or reptiles could be killed or injured by construction equipment or personnel, should they be present on the project site during construction.

Mitigation Measure 3.3-1a: Avoid and minimize impacts on California tiger salamander. SMUD will implement the following measures to avoid and minimize potential construction impacts on California tiger salamander:

- A qualified California tiger salamander biologist (defined as an individual with 3 years of experience conducting surveys for California tiger salamander and habitat in the project region) will be present on-site to conduct monitoring during project construction and decommissioning activities that disturb surface soils within 250 feet of drainages or any other aquatic features identified as suitable for California tiger salamander (AECOM 2018b).
- SMUD will confine all project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander (AECOM 2018b). To the extent it is not possible to limit such activities to previously disturbed areas or areas that are not suitable habitat for California tiger salamander, the qualified biologist will perform a preconstruction survey within 48 hours before constructing project-related parking, storage areas, laydown sites, and equipment storage sites to ensure California tiger salamander are not present. If a California tiger salamander is found within the project area, SMUD will implement any actions necessary to avoid take of California tiger salamander, including establishing appropriate buffer area and

exclusion fencing in consultation with USFWS and/or CDFW. If after avoidance measure cannot avoid take, SMUD shall seek an Incidental Take Permit from USFWS and/or CDFW, as appropriate, and implement any measures specified therein to reduce chances of take and minimize and fully mitigate any incidental take (including the measures in this MM 3.3-1a).

- All steep-walled holes or trenches that are 1 foot deep or greater and located within 250 feet of aquatic habitat that is suitable for CTS will have at least one escape ramp constructed of earthen fill or wooden planks. All such holes or trenches will be completely covered before sunset of each workday using boards or metal plates that are placed flush to the ground, and will be inspected before the start of daily construction activities.
- To prevent inadvertent entrapment of California tiger salamanders during project construction, maintenance, and decommissioning, all construction pipes, culverts, conduits, and other similar structures stored on-site overnight will be inspected before the structure is buried. Plastic monofilament netting will not be used for sediment control because it could pose an entrapment hazard to California tiger salamanders and other wildlife.

Mitigation Measure 3.3-1b: Develop and implement a worker environmental awareness program. Before the start of any construction activity, SMUD will develop a worker environmental awareness program that will be provided to all personnel working on the project site during construction and operation. Training materials and briefings will include but not be limited to the following elements:

- A discussion of applicable requirements established by the following laws and regulations, consequences of noncompliance, and the specific conditions of permits obtained for the project from regulatory agencies (USACE, the RWQCB, USFWS, and CDFW) under these laws and regulations:
- the federal ESA and CESA;
- the Bald and Golden Eagle Protection Act;
- the Migratory Bird Treaty Act;
- the Clean Water Act;
- Sections 3503, 3503.5, 3511, 3513, 3800(a), 4150, 4700, 5050, 5515, and 1602 of the California Fish and Game Code;
- California Code of Regulations Title 14, Sections 30.10 and 251.1;
- the Porter-Cologne Water Quality Control Act;

- Sections 5004 and 7201 of the CDFG Code; and
- California Coastal Act
- Information about workers' responsibilities with regard to California tiger salamander, an overview of the species' appearance and habitat, and a description of the measures being taken to reduce potential effects on the species during project construction.
- Identification and values of the special-status plant and wildlife species to be protected by the project; identification of important wildlife habitat and sensitive natural communities to be protected; and identification of special-status species, life history descriptions, habitat requirements during various life stages, and the species' protected status.
- Fire protection measures, measures to avoid introduction and minimize the spread of invasive weeds during construction and operation; procedures for managing trash and food waste to prevent attracting corvids or nuisance wildlife to the site; and procedures for preventing and containing spills of hazardous substances.

SMUD will conduct the worker-training program for new employees coming on the project site before the start of any construction, maintenance, or decommissioning activity that would disturb surface soils. SMUD will ensure that all personnel working on-site receive the training, including construction contractors and personnel who will operate and maintain project facilities. The training program will be recorded and subsequently shown to any project personnel who are unable to attend the initial training program.

If a California tiger salamander, alive or dead, is encountered (i.e., observed, killed, or otherwise taken) at any location on the project site during the project's lifetime, SMUD will notify USFWS and CDFW on the same day as the detection. Project personnel will not move the salamander encountered unless instructed to do so by USFWS and CDFW.

If instructed to move the California tiger salamander by USFWS, a USFWS-approved and permitted biologist will carefully relocate the salamander by hand to a suitable, nearby active burrow system (e.g., for Botta pocket gopher or California ground squirrel) outside the area where project activities could injure or kill the animal. (The USFWS-approved and permitted biologist will be an individual with a Section 10[a][1][A] handler's permit for California tiger salamander.) The qualified biologist will monitor the rescued California tiger salamander until it enters the burrow.

In addition to the measures described above, SMUD will implement the following measures, listed after Impact 3.3-13 below, to protect water quality and drainages during construction:

- Mitigation Measure 3.3-13a, “Avoid and Minimize Impacts on Wetlands and Other Waters of the United States”
- Mitigation Measure 3.3-13b, “Avoid and Minimize Potential Effects on Waters of the United States Associated with Installation of Access Road Culvert Crossings”
- Mitigation Measure 3.3-13c, “Comply with Section 1602 Streambed Alteration Agreement”
- Mitigation Measure 3.3-13d, “Avoid and Minimize Potential Effects on Waters of the United States from Horizontal Directional Drilling”

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in temporary and permanent construction impacts on special-status amphibians and reptiles. Adoption and incorporation of Mitigation Measures 3.3-1a and 3.3-1b into the project will reduce the impact to a less-than-significant level. Therefore, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant temporary and permanent construction impacts on special-status amphibians and reptiles to less- than-significant levels.

Impact 3.3-2: Construction impacts on nesting birds (nonraptors). Project construction could affect avian nesting success if active nests would be directly affected or if construction activity would disturb nest sites, thereby reducing adults’ nest attentiveness and productivity.

Mitigation Measure 3.3-2: Avoid impacts on nesting birds. In addition to Mitigation Measure 3.3-1b, “Develop and Implement a Worker Environmental Awareness Program,” and measures for biological monitors, SMUD will implement the following measures to avoid directly or indirectly affecting nesting birds during project construction:

- SMUD will conduct preconstruction nesting bird surveys to locate all active nests of special-status birds and birds protected under the MBTA and California Fish and Game Code Sections 3503 and 3503.5. No more than one week before any construction activities occur during the nesting season (February 1–August 31), including vegetation removal if necessary, a qualified biologist shall conduct nesting bird surveys to identify any nests within 100 feet of proposed work areas. The qualified

biologist is defined as an individual knowledgeable about the distribution, habitat, life history, and identification of Northern California birds, and with 3 years of experience in nest searching for birds that may be present in the project area.

- If nests are detected during the preconstruction surveys, a 100-foot exclusion zone will be established around the nest in which no work will be allowed until the young have successfully fledged or nesting activity has ceased. The qualified biologist will make the determination of fledging or cessation of nesting. In consultation with a qualified avian biologist, USFWS, and CDFW, the size of the exclusion zone may be modified depending on the species and the type of construction activity and associated disturbance anticipated near the nest.

Finding: The Board finds that implementation of Solano 4 Wind Project construction could affect avian nesting success if active nests would be directly affected or if construction activity would disturb nest sites. Adoption and incorporation of Mitigation Measure 3.3-2 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant construction impacts on nesting birds to less-than-significant level.

Impact 3.3-4: Construction impacts on raptor nesting activity. Project construction could affect raptor nesting success if active nests would be directly affected or if construction activity would disturb nest sites, thereby reducing adults' nest attentiveness and nest productivity.

Mitigation Measure 3.3-4a: Avoid and minimize impacts on nesting raptors.

SMUD will implement the following measures to avoid and minimize impacts on nesting raptors:

- If construction activities are scheduled to occur during the breeding season (February 1–August 31), SMUD will conduct preconstruction surveys in all potential suitable raptor nesting habitat within 0.25 mile of proposed construction areas, including trees, shrubs, grasslands, and wetland vegetation. A qualified wildlife biologist shall determine the timing of preconstruction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 30 days before construction. The 30-day survey period allows flexibility in order for

surveys to be conducted when the likelihood of nest detection is maximized (e.g., during courtship, nest building, or when feeding young).

- SMUD will conduct nesting surveys for Swainson's hawks in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) guidance published in 2000 (Recommended Timing and Methodology for Swainsons' Hawk Nesting Surveys in California's Central Valley). These methods will require surveys to start early in the nesting season (late March to early April). Surveys will be conducted within a minimum 0.25-mile radius of the project area or a larger area if necessary to identify potentially active nests potentially affected by project construction. As required by the TAC guidance, surveys will be conducted for at least two survey periods in the nesting season, immediately before the start of project construction activities. The qualified biologist conducting the surveys will have a minimum of 2 years of experience in implementing the TAC survey methodology.
- SMUD will maintain no-disturbance buffers around active raptor nests during the breeding season, or until it is determined the young have fledged. The no-disturbance zone shall include a 500-foot buffer around all raptor nests (including owls) and a 0.25-mile buffer for any active Swainson's hawk nests.
 - No-disturbance buffer sizes for non-special-status species raptors may be increased or decreased by a qualified biologist based on the sensitivity of the species of raptor, or based on site conditions that affect disturbance, such as the type of work, vegetation structure or density, and the line of sight between construction work and the nest to nesting raptors.
 - No-disturbance buffer sizes for special-status raptor species may be increased or decreased by the qualified biologist in consultation with USFWS and CDFW as appropriate.
 - Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (e.g., county roads, highways, farm roads).
 - If no nests are observed during the preconstruction survey but nesting occurs after the start of construction, it will be assumed that the individuals are acclimated to the level of ongoing disturbance.
- SMUD will clearly identify the locations of no-disturbance buffers (e.g., 250 feet, 500 feet, or 0.25 mile) on maps that will be made available to construction crews.

- Before and during construction, a qualified biologist shall identify all active nest setback areas on construction drawings, and if appropriate, shall flag or fence the setback areas.
- If construction is scheduled to occur during the non-nesting season, then no nesting bird surveys are required before construction activity begins, except provisions for surveys for burrowing owls outside the nesting season (September 1–January 31), as specified below in Mitigation Measure 3.3-4b.

Mitigation Measure 3.3-4b: Avoid and minimize impacts on burrowing owls. To avoid and minimize impacts on burrowing owls, SMUD will implement the following guidelines adapted from the *CDFW Staff Report on Burrowing Owl Mitigation* (CDFG 2012):

- SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 500 feet of proposed construction. The take avoidance surveys, consisting of up to four visits, shall be initiated within 30 days of and completed at least 14 days before construction is initiated at a given location. In areas with burrows or refuge that could potentially support burrowing owls, a clearance visit shall be conducted within 24 hours of construction, including when construction work is reinitiated after a lapse of two or more weeks.
- SMUD will avoid disturbing active western burrowing owl nests and occupied nesting burrows.
 - In accordance with standard CDFW mitigation guidelines, SMUD and its construction contractor will avoid disturbance at occupied burrows in accordance with the following seasonal distance buffers for low, medium, and high levels of disturbance (CDFG 2012):
 - April 1 – August 15: 200 m (low), 500 m (medium), and 500 m (high)
 - August 16 – October 15: 200 m (low), 200 m (medium), and 500 m (high)
 - October 16 – March 31: 50 m (low), 100 m (medium), and 500 m (high)
 - These distances may be increased or decreased if, as determined by a qualified biologist, a different distance is required to ensure

construction activities will not adversely affect occupied burrows or disrupt breeding behavior.

- If a qualified biologist, in consultation with CDFW, determines that construction could adversely affect occupied burrows during the September 1–January 31 nonbreeding season, SMUD shall consult with CDFW to determine if passive relocation using one-way doors, in accordance with guidelines prepared by the California Burrowing Owl Consortium (CDFG 2012), should be implemented, and if off-site compensatory mitigation is required to offset habitat loss. Compensatory mitigation for loss of burrowing owl habitat would require protection of suitable mitigation lands in perpetuity at a minimum 3:1 mitigation ratio.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant construction impacts on raptor nesting activity. Adoption and incorporation of Mitigation Measures 3.3-4a and 3.3-4b into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact on raptor nesting activity to less-than-significant level.

Impact 3.3-5: Removal and modification of raptor nesting, foraging, and roosting habitat during construction. Project construction would result in permanent and temporary impacts on raptor nesting and foraging habitat.

Mitigation Measure 3.3-5: Acquire off-site mitigation to replace lost raptor foraging habitat. SMUD will implement the following compensatory mitigation to offset net impacts on foraging habitat for breeding Swainson's hawks and other raptor species. Based on Swainson's hawk nest locations documented in recent years, no permanent project impacts on foraging habitat will occur within 1 mile of an active Swainson's hawk. Depending on whether the 150m WTG option or the 136m WTG option is selected, 25.38 acres or 30.49 acres of suitable Swainson's hawk foraging habitat will be required to mitigate this loss.

SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands as follows:

- Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree (either 25.38 acres or 30.49 acres, depending on the WTG option selected) will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat

permanently lost because of project construction (0.75:1 ratio). This ratio is consistent with recommendations in DFG 1994: “Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of habitat mitigation land for each acre of urban development authorized [0.75:1].” All mitigation lands protected under this requirement shall be protected in perpetuity in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson’s hawk. The easement will be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity, to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Sections 65965–65968 of the Government Code, as amended. As the State’s trustee for fish and wildlife resources, CDFW is to be named as a third-party beneficiary under the conservation easement. SMUD will consult with CDFW in determining the suitability of the proposed mitigation lands to offset impacts of the project on Swainson’s hawk foraging habitat.

- Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant removal and modification of raptor foraging habitat during construction. Adoption and incorporation of Mitigation Measure 3.3-5 into the project will reduce the impact to a less-than-significant level. Therefore, the project with mitigation will not cause significant construction impacts on raptor foraging habitat.

Impact 3.3-6: Construction impacts on bald and golden eagle nesting activity.

Project construction activities could affect eagle nesting success if they would disturb nest sites, thereby reducing adults’ nest attentiveness and nest productivity.

Mitigation Measure 3.3-6: Avoid and minimize impacts on nesting eagles. SMUD will implement the following measures to avoid and minimize impacts on nesting eagles:

- Ground-based surveys will be conducted to assess the status of all previously documented eagle nest locations (CNDDDB or other reliable sources) within the 2-mile buffer of the project area, and will follow guidance set forth in USFWS (2013) for ground-based surveys to

determine occupancy, including the following site-specific recommendations:

- Two 4-hour observations shall be conducted at each nest (multiple nests may be observed simultaneously), one in late January and the other in late February, to determine whether territories are occupied by adult eagles and identify nesting activity where possible.
- If an active nest is located, no further ground monitoring is required. However, if nesting behavior is observed within 2 miles of the project buffer and a nest site is not located, an aerial inspection of the area shall be conducted.
- The results of the surveys shall be documented in a report and submitted to USFWS and CDFW no later than August of the breeding season in which the survey was conducted (e.g., August 2020 for winter/spring 2020 surveys).

SMUD will implement the following avoidance buffer distances for bald eagle and golden eagle (respectively) for the indicated construction activity, assuming a direct line of sight between the construction activity and the active nest:

- Human foot traffic: 400 meters/800 meters
- Pass-through vehicular traffic: 200 meters/400 meters
- Any other construction work except the types described below: 800 meters/1,600 meters
- Blasting: 1,600 meters for both species
- Helicopter flight: 1,600 meters (horizontal and vertical) for both species

Active eagle nests and associated buffers will be indicated in construction drawings for the project and will be discussed in the worker environmental awareness program training for construction workers (Mitigation Measure 3.3-1b).

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant construction impacts on bald and golden eagle nesting activity. Adoption and incorporation of Mitigation Measure 3.3-6 into the project will reduce the impact to a less-than-significant level. Therefore, the project with mitigation will not cause significant construction impacts on bald and golden eagle nesting activity.

Impact 3.3-7: Removal and modification of golden eagle foraging habitat during construction. Project construction would result in temporary and permanent impacts on golden eagle foraging habitat, resulting in decreased prey availability.



Mitigation Measure 3.3-7: Implement Mitigation Measure 3.3-5. SMUD will implement Mitigation Measure 3.3-5, “Acquire Off-site Mitigation to Replace Disturbed Raptor Foraging Habitat,” listed above.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant temporary and permanent impacts on golden eagle foraging habitat during construction. Adoption and incorporation of Mitigation Measure 3.3-7 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact on golden eagle foraging habitat during construction to less-than-significant level. .

Impact 3.3-9: Injury to and mortality of raptors, other birds, and bats from project operation. Project operation could result in injury to and mortality of bats and birds, including eagles and other special-status birds, as a result of collisions with wind turbine generators.

Mitigation Measure 3.3-9a: Avoid and minimize operational impacts on birds and bats. SMUD will design and operate the project to minimize potential operational impacts on birds and bats by adhering to impact avoidance and minimization measures, including those described the *SMUD Solano Wind Bird and Bat Conservation Strategies* (SMUD 2013), and SMUD’s Eagle Conservation Plan (SMUD 2014). These measures include the following:

- Maintain a landscape that does not encourage bird or bat occurrence by conducting regular rotational agricultural activities to keep rodent prey populations to relatively low levels. In addition, implement a prey management program to reduce the availability of rabbits, ground squirrels, and other prey that could attract eagles and other raptors.
- Adhere to the general guidelines for turbine and WTG tower design and operation to minimize bird and bat mortality:
 - Use turbines and WTG tower designs lacking potential raptor perches that may encourage bird activity near the moving rotors.
 - Use turbines with rotor tips at least 25 meters, preferably 30 meters, above the ground.
- Avoid guy wires on meteorological towers.
- Select WTG sites using the following guidelines designed to minimize the extent of potential avian and bat mortality:

- Minimize the density of WTGs on the landscape and avoid placing WTGs close together in long strings, which creates barriers to movement by restricting the available space for birds and bats to negotiate through a WTG field.
- Establish setbacks from roads, residences, and wetlands and other unique habitats where birds and bats are more likely to congregate.
- Where possible, avoid steep slopes, canyons, saddles, and other high-risk topographic features.

Mitigation Measure 3.3-9b: Conduct bird and bat mortality monitoring. To assess operational impacts on birds and bats and inform potential adaptive management and mitigation approaches, SMUD will conduct 1 year of postconstruction mortality monitoring in the project area, as follows:

- Qualified biologists shall monitor bird and bat mortality annually throughout the project area in accordance with the requirements set forth below, which incorporate guidelines described in SMUD's Solano BBCS (SMUD 2013), SMUD's *Final Eagle Conservation Plan* (SMUD 2014), and the *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development* (CEC and DFG 2007). The monitoring shall be conducted so that sufficient information is available to allow evaluation of WTG design characteristics and location effects that contribute to mortality, including information about the species, number, location, and distance of dead birds relative to WTG locations; availability of raptor prey species; and cause of bird and bat mortalities.
- Monitoring will be conducted monthly for 1 year at all turbines in the Solano 4 Wind Project area after the first delivery of power, and will include but not be limited to the following methods unless otherwise determined appropriate by SMUD:
 - The standard search radius will be 100 meters to account for terrain and WTG height.
 - A sufficient number of "road and pad" searches will be conducted to 150 meters to determine the proportion of carcasses falling outside of the standard (100-meter) search radius.
 - Searcher efficiency trials will be conducted for four seasons and will be sufficient to analyze differences in carcass size (small/medium/large) and vegetative cover.
 - Data will be analyzed using procedures described by the California Energy Commission and CDFW (CEC and CDFG 2007), or newer

approaches (e.g., General Estimator [Dalthorp et al. 2018], the Evidence of Absence model [Dalthorp et al. 2017]). The data analysis will address adjusted fatality rates annually, seasonally, and by species. An annual report will be prepared each year and a final report will be prepared after the 1-year monitoring period.

- If a carcass with a band is found in the project area, SMUD will promptly report the banding information to USFWS's Bird Banding Laboratory. SMUD will consult with the laboratory to include any information provided by USFWS that is pertinent to avian mortality at the project site, if any, in the annual monitoring reports.
- After postconstruction monitoring data have been obtained, SMUD will review the data. In consultation with USFWS and CDFW, SMUD will determine which specific WTGs, if any, generate disproportionately high levels of avian mortalities (based on evidence of statistically significant higher levels of mortality relative to other WTGs), and whether adaptive management measures are needed to reduce or avoid mortalities at those specific WTGs.
- If unauthorized take of a federally listed or state-listed endangered or threatened avian or bat species occurs during project operation, SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery, and will submit written documentation of the take to the appropriate agency within 2 calendar days. The documentation will describe the date, time, location, species, and if possible, cause of unauthorized take. Although not expected to occur, SMUD will implement any measures to avoid, minimize, or compensate for possible take in consultation with the USFWS and/or CDFW, including obtaining an Incidental Take Permit, as appropriate. Also, see Mitigation Measure 3.3-9g Implement Adaptive Management.

SMUD will design and conduct postconstruction mortality monitoring in a way that ensures at least a 50 percent chance of detecting mortality of large raptors (including golden eagle and Swainson's hawk) caused by a collision with a project WTG. Modeling tools such as the Evidence of Absence model (Dalthorp et al. 2017) can be used to design studies with such an objective in mind. This may require adjusting the radius of the search area around the WTGs, the proportion of WTGs searched, or other standard parameters set forth above.

After postconstruction monitoring activities, SMUD will conduct an annual "clean sweep" around all Solano 4 turbines each subsequent calendar year for the life of the project. In addition, SMUD will continue its current practice of incidental

monitoring of the project area through reporting of incidental fatalities or injured birds by on-site staff to the Avian Reporting System (see Mitigation Measure 3.3-9h, “Implement Adaptive Management to Address Disproportionate Mortality of Special-Status Birds or Bats,” below). SMUD will also continue to report incidental fatalities or injured birds in compliance with its USFWS Special Purpose Utility Permit (Permit #MB189818-0). As required in Mitigation Measure 3.3-9b SMUD will notify the appropriate agency (USFWS and/or CDFW) within 48 hours of the discovery any unauthorized take of a federally listed or state-listed endangered or threatened species.

Mitigation Measure 3.3-9c: Implement a training program for construction and project personnel. SMUD will implement a training program so that on-site staff will have a thorough understanding of eagle mortality issues and corresponding protocols. The training program focuses on staff members with direct and indirect implementation responsibilities, including managers, supervisors, engineers, and on-site field crews. The training program will include the following elements:

- introduction and description of eagle mortality issues;
- description of SMUD’s environmental stewardship policy (SMUD Board Policy SD 7);
- description of avian resources in the project area and the species most susceptible to collision mortality or injury;
- discussion of federal and state regulations that protect birds, legal implications, and the need for compliance;
- protocols for recording/reporting avian incident data and procedures for carcass collection and injured wildlife; and
- responsibilities of staff members to implement the BBCS.

Mitigation Measure 3.3-9d: Provide funding for raptor recovery and rehabilitation. SMUD will contribute \$5,000 each year for the duration of project operation to the University of California, Davis, California Raptor Center (UC Davis Raptor Center) or its successors for rehabilitation of injured avian species, including eagles and other raptors. The UC Davis Raptor Center is authorized by USFWS and CDFW to rehabilitate injured and orphaned raptors. The UC Davis Raptor Center successfully returns approximately 60 percent of the sick, injured, and orphaned birds it receives to the wild each year (UC Davis California Raptor Center 2019).

Mitigation Measure 3.3-9e: Reduce vehicle collision risks to wildlife. SMUD's operators will enforce a speed limit of 15 miles per hour on all roads on the project site to minimize the risk of collisions with small mammals and other wildlife, thereby reducing the number of roadkills, a potential food source that could attract eagles and increase their risk of vehicle collisions.

Mitigation Measure 3.3-9f: Secure an eagle incidental take permit for Solano 4 Wind from USFWS and implement permit conditions. SMUD will compensate for the loss of any golden or bald eagles injured or killed as a result of project operation by complying with the conditions described in SMUD's Eagle Take Permit. Compensatory mitigation for eagle fatalities may include paying for the retrofitting of electrical utility poles that present a high risk of electrocution to eagles, as prescribed in the *Eagle Conservation Plan Guidance*, Appendix G (USFWS 2013). The performance standard for this compensatory mitigation would be to implement sufficient measures (e.g., electric utility retrofits) to offset all eagle fatalities directly attributable to project operation and resulting in permanent removal of an eagle from the wild, whether detected during structured postconstruction mortality monitoring surveys or detected incidentally.

For each instance of project-related injury or mortality that removes a bird from the population, 32 utility poles shall be retrofitted. This is based on a resource equivalency analysis performed in accordance with USFWS guidelines (USFWS 2013:Appendix G) and assumes that each retrofitted pole would result in 10 years of avoided loss because of electrocution. The resource equivalency analysis also assumes that the take of one eagle and the associated compensatory mitigation will occur during the same year. Certain utility poles may be eligible for "reframing" (as opposed to retrofitting) to avoid electrocution, which USFWS assumes will result in 30 years of avoided loss rather than 10 years. The reframing of 14 eligible utility poles is sufficient to offset take of a single eagle, according to the resource equivalency analysis.

Compensatory mitigation for the loss of each eagle shall be completed within 1 year of each instance of documented take. Retrofitted poles must be considered "high-risk" for electrocution (per USFWS 2013:Appendix G). For instances of bald eagle take, retrofitted poles must be located in areas where both species occur and within the Pacific Flyway north of 40 degrees North latitude. For instances of golden eagle take, retrofitted poles must be located within the Pacific Flyway. These areas represent the USFWS-designated "Eagle Management Units" at the project site for bald eagles and golden eagles, respectively (USFWS 2016).



SMUD will comply with the federal eagle incidental take permit that will be secured for the project. Any mitigation completed toward fulfillment of the eagle take permit requirements will be counted toward the mitigation requirements described above. If mitigation requirements specified in the USFWS eagle take permit differ from those described above, the USFWS permit requirements shall prevail.

Mitigation Measure 3.3-9g: Implement adaptive management to address disproportionate mortality of special-status birds or bats. SMUD will implement adaptive management strategies if postconstruction mortality monitoring studies determine that project operation is resulting in disproportionate mortality of one or more avian or bat species. The goal of the adaptive management strategies is to avoid a local population of avian or bat species dropping below self-sustaining levels. In accordance with the Solano BBCS (SMUD 2014), a determination to implement adaptive management based on “disproportionate mortality” will consider the factors listed below.

- Number of annual fatalities per turbine
- Disproportionate representation of a particular species
- Comparison to other wind energy facilities

As part of the annual survey and monitoring program described in Mitigation Measure 3.3-3b above, SMUD will analyze information related to these factors. Through this process of data collection, analysis, and consideration of these factors, disproportionate mortality at individual WTGs will be analyzed.

A project-related fatality of one or more federal- or California-listed species or one or more California Fully Protected Species would trigger consultation with USFWS and/or CDFW, and implementation of the adaptive management and compensatory mitigation measures described below. If avian or bat mortality resulting from operation of the Solano 4 Wind Project exceeds the maximum estimated fatality rates described in Tables 3.3-11 and 3.3-12 for special-status birds or bats as well as common species, SMUD will develop and implement a comprehensive set of biologically based, reasonable, and feasible management and/or mitigation measures for responding to the fatality threshold exceedance, along with a timeline for implementation. SMUD will consult the USFWS and CDFW in development of the adaptive management and compensatory mitigation strategies for special-status birds and bats. Potential adaptive management actions to be considered include but are not limited to the following:

- *Implement avian or bat detection/deterrent systems.* This involves testing and implementing systems that detect birds and bats and taking actions designed to reduce the probability of a collision (e.g., informed WTG curtailment, utter deterrents designed to warn or frighten birds and bats from operating WTGs), including:
 - DT Bird/DT Bat Systems
 - IdentiFlight Eagle Detection System
- *Implement passive avian or bat deterrents.* This involves testing and implementing deterrents designed to warn or frighten birds and bats from operating WTGs, including:
 - improved blade marking (compatible with Solano County visual guidelines) such as variations in paint color and color patterns;
 - blade designs that produce bird warning “whistles” (without upsetting blade integrity or exceeding ambient noise limits); and
 - ultrasonic devices that infuse the blade-swept area with high-frequency sounds that alert or frighten bats.
- *Reduce on-site hazards.* Additional techniques for reducing on-site hazards, including possible operational adjustments, should be discussed if mortality rates substantially exceed study estimates. This could include making adjustments to cut-in speed or changes during migratory periods, if such actions are demonstrated to be effective as avoidance and minimization techniques.
- *Reduce off-site hazards.* This can include installing safety features, such as anti-perching devices on poles or anti-electrocution retrofits and diverters on power lines, outside the project area (with concurrence from landowners and Pacific Gas and Electric Company or their successors) to discourage bird use. This should take advantage of Avian Power Line Interaction Committee guidelines and use hazard reduction techniques identified in SMUD’s avian protection plan.
- *Implement operational minimization protocols (curtailment) during high-risk periods for bats.* High-risk periods include nighttime when wind speeds are low, spring and autumn migration periods, and certain weather conditions such as before and after storms (Arnett et al. 2011), Standard curtailment protocols can reduce bat fatalities by up to 93 percent, and feathering turbine blades can reduce bat fatalities by an average of 35 percent. Refined curtailment approaches such as the predictive algorithm-based curtailment approach developed by Korner-Nievergelt et al. (2013 in Sutter 2018) and Behr et al. (2017 in Sutter 2018), and activity-based curtailment strategies based on bat detection

(Sutter 2018) have also been shown to substantially reduce bat mortality.

- *Contribute to ongoing conservation efforts.* Examples include acquisition of additional conservation property (or easements) that provide habitat for species affected by project operations, and additional direct contributions to habitat restoration organizations or facilities such as the UC Davis Raptor Center.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant injury to and mortality of birds and bats from project operation. Adoption and incorporation of Mitigation Measure 3.3-5 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant operation impact on birds and bats to less-than-significant level.

Impact 3.3-12: Indirect impacts on riparian habitat. Project construction and operation could indirectly affect riparian habitat by altering existing topography and hydrology, causing fugitive dust to accumulate on vegetation, and potentially contributing to the introduction and spread of nonnative invasive plant species.

Mitigation Measure 3.3-12a: Avoid indirect impacts on riparian habitat. SMUD will avoid and minimize indirect impacts on riparian habitat by implementing the following mitigation measures:

- Mitigation Measure 3.5-1, “Prepare and Implement a SWPPP and Associated BMPs,” listed in Section 3.5, “Geology, Soils, Paleontological Resources, and Mineral Resources”
- Mitigation Measure 3.7-1b, “Establish and Implement an Environmental Training Program,” listed in Section 3.7, “Hazards and Hazardous Materials”
- Mitigation Measure 3.7-1c, “Prepare and Implement a Hazardous Substance Control and Emergency Response Plan,” listed in Section 3.7, “Hazards and Hazardous Materials”
- Mitigation Measure 3.7-1d, “Prepare and Implement a Spill Prevention, Control, and Countermeasures Plan,” listed in Section 3.7, “Hazards and Hazardous Materials”

In addition, SMUD will implement the following measures:

- Before any construction activity, SMUD will assign a qualified biologist to identify the locations of riparian habitat and corresponding setbacks required by project permits, for avoidance. Identification of riparian habitat for avoidance will be in addition to and distinguished from any required construction boundary fencing or flagging. Setback requirements will be identified as appropriate (e.g., 100-foot setback) on project maps to comply with requirements specified in 404, 401, or 1602 permit conditions.

Mitigation Measure 3.3-12b: Comply with Section 1600 streambed alteration agreement and CWA Sections 401 and 404 or the state's Porter-Cologne Act. SMUD will obtain all necessary permits under Section 1602 of the California Fish and Game Code (Lake and Streambed Alteration Agreement) and Sections 401 and 404 of the CWA or the state's Porter-Cologne Act and will implement all conditions and requirements of these state and federal permits obtained for the project.

Mitigation Measure 3.3-12c: Develop a reclamation and revegetation plan. Before project construction, SMUD will develop and implement a reclamation and revegetation plan to restore sites disturbed by construction, and to reclaim abandoned access roads that will be restored to agricultural uses. The plan will describe reclamation and revegetation efforts to be conducted during project construction, both to stabilize the site and to return temporarily affected areas to pre-project conditions or restore abandoned roads to agricultural uses.

The goals of the reclamation and restoration plan will be to:

- avoid the introduction and spread of invasive weeds,
- develop vegetative cover in disturbed areas to prevent erosion, and
- restore abandoned roads to agricultural uses (livestock grazing and dryland farming).

The reclamation and restoration plan will be consistent with the goals and objectives described in SMUD's Land Management Plan for the Solano Wind Farm (Althouse and Meade 2018) or subsequent updates to that plan. The targets for percent vegetative cover and percent non-native species composition will be based on pre-project baseline surveys in areas that will be subject to disturbance. Monitoring to assess success (i.e., achieving the target pre-project vegetative cover and species composition) will occur for a period of 2 years. If the success criteria are not met at the end of 2 years, adaptive management measures for weed and erosion control, as described

in SMUD's Land Management Plan (Althouse and Meade 2018), will be implemented.

The reclamation and revegetation plan will be developed and implemented to reclaim existing vegetation communities and agricultural land uses in the project area to the maximum extent feasible.

Reclamation and revegetation of temporarily disturbed sites immediately after the completion of construction activities will help protect against indirect effects on riparian habitat by stabilizing soil and reducing the potential for invasion by nonnative invasive and noxious weeds.

The plan will include, at a minimum, the following provisions:

- Reclamation of all areas disturbed by project construction, including temporary disturbance areas around construction sites, laydown/staging areas, temporary access roads, and the home run collection lines. Pest species listed by CDFA as List A or B, listed by the California Invasive Plant Council as Moderate or High, and/or targeted by the Solano Weed Management Area for eradication in Solano County shall not be used. A qualified biologist with demonstrated experience with the land cover types to be revegetated will have oversight for the selection of reclamation species.
- Revegetation of areas of temporary disturbance as soon as construction is complete to reduce erosion and inhibit the establishment of invasive weeds.
- A description of proven available revegetation techniques and procedures (such as hydroseeding, drill seeding, and broadcast seeding, adapted to local conditions) on all disturbed areas.
- Salvage of topsoil in all areas subject to grading or excavation. Topsoil will be removed, stockpiled on-site, and returned to the original site (reclaimed) or used in habitat reclamation activities elsewhere on the site.
- Monitoring of revegetated and reclaimed habitat for a minimum of 2 years or until herbaceous cover meets or exceeds preproject conditions. Success criteria are defined as minimum thresholds for herbaceous vegetative cover, and maximum thresholds for noxious weeds, based on preproject (baseline) conditions for each habitat type to be revegetated (e.g., grazed annual grassland, farmland).

- Weed control measures, which may include cultural, mechanical, and/or chemical methods. Any application of herbicides shall be in compliance with all federal and state laws and regulations and implemented by a licensed qualified applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. In riparian areas and near streams and wetlands, only water-safe herbicides shall be used. Herbicides shall not be applied when wind velocities exceed 6 miles per hour.
- Adaptive management measures and a remedial planting plan. Remedial measures (e.g., additional planting, weeding, or erosion control) will be taken during the monitoring period if necessary to ensure success of the revegetation or reclamation effort.
- Maintenance, monitoring, and reporting procedures.

If the revegetation/reclamation fails to meet the established performance criteria for vegetative cover within the maintenance and monitoring period, monitoring of remedial planting shall extend beyond the initial period until the criteria are met, unless otherwise approved by the permitting agencies.

If elements of the revegetated/reclaimed area(s) meet their success criteria before the end of 2 years of monitoring, they may be eliminated from future monitoring with approval from the permitting agencies.

Mitigation Measure 3.3-12d: Conduct worker awareness training. SMUD will implement Mitigation Measure 3.3-1b, “Develop and Implement a Worker Environmental Awareness Program,” to include specific information regarding riparian habitat that occurs on the project site and that would be identified for avoidance. Training will be conducted before the start of construction. The training will include information about the locations and extent of riparian habitat, methods of resource avoidance, permit conditions, and possible fines for violating permit conditions and federal and/or state environmental laws. The training will also include guidance on methods to avoid the introduction and spread of invasive plant species.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant indirect impacts on riparian habitat. Adoption and incorporation of Mitigation Measures 3.3-12a through 3.3-12d into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or

incorporated into the project to avoid or substantially lessen the potentially significant impact on riparian habitat to less-than-significant level.

Impact 3.3-13: Loss and degradation of federally protected waters of the United States. Project construction for installation of wind turbine generators and associated infrastructure would result in the loss and degradation of federally protected wetlands and other waters of the United States. Federally protected waters could also be disturbed indirectly by activities associated with staging areas and laydown of project components.

Mitigation Measure 3.3-13a: Avoid and minimize impacts on wetlands and other waters of the United States. SMUD will avoid and minimize impacts on wetlands and other waters of the United States by implementing the following mitigation measures:

- Mitigation Measure 3.3-12c, “Develop a Reclamation and Revegetation Plan”
- Mitigation Measure 3.5-1a, “Prepare and Implement a SWPPP and Associated BMPs,” listed in Section 3.5, “Geology, Soils, Paleontological Resources, and Mineral Resources”
- Mitigation Measure 3.7-1b, “Establish and Implement an Environmental Training Program,” listed in Section 3.7, “Hazards and Hazardous Materials”
- Mitigation Measure 3.7-1c, “Prepare and Implement a Hazardous Substance Control and Emergency Response Plan,” listed in Section 3.7, “Hazards and Hazardous Materials”
- Mitigation Measure 3.7-1d, “Prepare and Implement a Spill Prevention, Control, and Countermeasures Plan,” listed in Section 3.7, “Hazards and Hazardous Materials”

SMUD will obtain and implement the terms of all necessary permits under Section 1602 of the California Fish and Game Code (Lake and Streambed Alteration Agreement) and CWA Sections 401 and 404, and will comply with the conditions and requirements of all other federal and state permits obtained for the project. In addition, SMUD will implement the following measures:

- SMUD will identify corresponding setback requirements as appropriate (e.g., 100-foot setback) on project maps to comply with setback requirements described in permit conditions. Any required setback will be shown on project construction drawings and plans (e.g., grading and

improvement plans). Construction activities and project components will be located at least 100 feet from aquatic resources wherever feasible.

- Before the start of any construction activity, SMUD will assign a qualified biologist to identify the locations of wetlands and other waters and their corresponding setbacks (if applicable) as required by project permits, for avoidance. Identification of wetlands and other waters for avoidance will be in addition to and distinguished from any required construction boundary fencing or flagging

Mitigation Measure 3.3-13b: Avoid and minimize potential effects on waters of the United States from installation of access road culvert crossings. SMUD will comply with the following mitigation measures to minimize potential effects on waters of the United States caused by installation of culvert crossings to allow vehicular access across waters:

- Before project construction, SMUD will design culvert crossings to maintain hydrological connectivity while allowing vehicular access across aquatic features. A hydrology study of the proposed culvert location(s) will be conducted to analyze existing drainage conditions and calculate appropriate culvert size(s).
- Before project construction, the contractor will obtain a grading permit from Solano County. During construction, the contractor will comply with all terms and conditions of the permit, including any supplemental conditions if applicable, and with the provisions of Chapter 31 of the Solano County Code, "Grading, Drainage, Land Leveling, and Erosion Control Ordinance." All grading work will be performed in accordance with good design and construction practice. SMUD will supply a bond if requested by Solano County.
- The contractor for culvert installation shall adhere to the following general design principles and standards, which shall serve as minimum guidelines for grading and erosion control work performed pursuant to the project's grading permit:
 - All work shall be done in a manner that will minimize soil erosion.
 - Existing natural vegetation shall be retained and preserved wherever possible and practical.
 - Increased potential for erosion by removal of vegetation shall be limited by minimizing the area and time of vegetation removal to the extent practical. Exposure of barren soils shall be limited by completing work before the onset of the rainy season, to ensure

that the soil is stabilized and vegetation is established in advance of the rainy season (October 15–April 15).

- Facilities shall be constructed to retain sediment produced on-site. Sediment basins, sediment traps, and similar required measures shall be installed before any clearing or grading activities, and shall be maintained throughout any such operations until removal is authorized.
- Seeding, mulching, and other suitable stabilization measures shall be used to protect exposed erodible areas in advance of the rainy season.
- Provisions shall be made to mitigate any increased runoff caused by altered soil conditions during and after construction.
- Neither cut nor fill slopes shall be steeper than two parts horizontal to one part vertical (2:1) unless a geological or engineering analysis indicates that steeper slopes are safe and appropriate erosion control measures are specified.
- Cleared vegetation and excavated materials shall be disposed of in a manner that reduces the risk of erosion, and in conformance with the provisions of the approved grading permit. Topsoil shall be conserved for use in revegetation of disturbed areas whenever possible or practical.
- Every effort shall be made to preserve existing channels and watercourses. No work shall be performed within a channel or watercourse unless no reasonable alternative is available. If such work is performed, it shall be limited to the minimum amount necessary.
- All fill material shall not include organic, frozen, or other deleterious materials. No rock or similar irreducible material greater than 12 inches in any dimension shall be included in fills.
- All fill supporting a structure shall be compacted to 90 percent of maximum density as determined by ASTM D 1557, modified proctor, in lifts not exceeding 12 inches in depth

Mitigation Measure 3.3-13c: Comply with Section 1602 streambed alteration agreement for construction activities in jurisdictional areas. Before construction, SMUD will submit a notification of streambed alteration to CDFW under Section 1602 of the Fish and Game Code. If CDFW concludes that the project will result in adverse impacts to fish and wildlife resources, it will provide a proposed

Streambed Alteration Agreement, which must obtain reasonable conditions. SMUD will implement all reasonable permit conditions, including requirements for compensatory mitigation (if any). Where feasible, the compensatory mitigation requirement may be combined with those for other mitigation measures or mitigation required for the CWA Section 404 and 401 permits. These conditions may include the following measures:

- Pre-construction Measures: Before any construction activities begin, a qualified wetland biologist will identify and flag the boundaries of all wetlands in the project area. Appropriate barriers (straw bales, silt, fences, etc.) will be installed near sensitive resources to prevent sedimentation outside the work areas. During construction, wetlands will be treated as exclusion areas and activities within them will be strictly limited to those pertaining to this permit application.
- SWPPP: The construction contractor shall prepare and implement a SWPPP and associated BMPs.
- Hazardous Substance Control Plan. SMUD shall prepare and implement a construction-specific hazardous substance control and emergency response plan for quick, safe cleanup of accidental spills.
- Buffer from Drainages. All staging and stockpile areas will be adjacent to the proposed road crossings, but away from sensitive areas. A minimum buffer of 100 feet from drainages would be used for refueling and storage.
- Worker Education: Prior to construction, Environmental Awareness Training will be provided to all construction workers. This will consist of tailgate environmental training sessions conducted by a qualified biologist for the purpose of informing all personnel about the wetlands and intermittent streams in the project area and the importance of spill prevention, emergency response measures, and proper implementation of BMPs. Any sensitive species in the project region will also be discussed. Personnel will be trained on the locations of sensitive areas and species as well as rules and methods for avoiding these resources. They will also be briefed on all permit conditions as well as the potential disciplinary actions that could result from violations of state or federal laws.
- Construction Monitoring. A qualified biologist will be on site during grading and construction activities to ensure protection of biological and other resources.

- Erosion Control: Erosion control and slope stabilization best management practices will be implemented. These practices may include installation of orange construction fencing, silt fencing, hay wattles, hay bales and other protective measures to avoid impacts to unvegetated areas

Mitigation Measure 3.3-13d: Avoid and minimize potential effects on waters of the United States from horizontal directional drilling. SMUD will implement the following mitigation measures to avoid and minimize potential effects on aquatic resources from horizontal directional drilling underneath drainage and swale features during installation of the underground home run collection lines:

- SMUD will provide notification regarding the HDD to CDFW as part of the streambed alteration agreement application. SMUD will assign a qualified biological monitor with previous HDD monitoring experience and knowledge of the environmental sensitivities of the project area to monitor all HDD activities. The monitor shall be on-site for the duration of HDD activities and shall provide brief reports of daily activities to CDFW.
- SMUD's biologist shall conduct on-site briefings for all HDD workers to ensure that all field personnel understand the locations of aquatic resources and their responsibility for timely reporting of frac-outs.
- Barriers (e.g., straw bales, sedimentation fences) shall be erected between the bore site and all nearby aquatic resources before drilling to prevent any material from reaching aquatic resource areas. The distance between the bore site and aquatic resource areas shall be compliant with requirements for protective setback boundaries as specified the CDFW permit.
- If the biological monitor suspects a potential frac-out that is not yet visible at the surface (e.g., loss of bentonite slurry in the drill pit but no frac-out at the surface), the HDD contractor shall immediately cease HDD activities and implement measures to reduce the potential for a frac-out (e.g., increase the density of the drilling mud or reduce the pressure of the drill). The contractor shall then be allowed to continue HDD activities.
- The HDD contractor shall keep necessary response equipment and supplies (e.g., vacuum truck, straw bales, sediment fencing, sand bags) on-site during HDD operations so that they are readily available in the event of a frac-out.
- SMUD shall prepare a frac-out contingency plan. In the event a frac-out is detected, the HDD contractor shall implement the following measures to reduce or minimize effects on the affected aquatic resource:

- All work shall stop until the frac-out has been contained and cleaned up.
- The frac-out area shall be isolated with straw bales, sandbags, or silt fencing to surround and contain the drilling mud; cleanup shall be performed using a vacuum truck supported by construction workers on foot using hand tools, as necessary. (To avoid affecting the stream bed and banks, mechanized equipment shall not be used to scoop or scrape up frac-out materials.)
- If a frac-out occurs, SMUD shall notify the appropriate jurisdictional agency (USACE, the Central Valley RWQCB, and/or CDFW) by telephone and in writing (email is acceptable) within 24 hours. The required notification shall describe the frac-out and cleanup measures implemented.

If a frac-out occurs and, based on consultation with appropriate agencies, is considered to have negatively affected waters of the United States, SMUD will implement appropriate measures to restore the area to pre-HDD conditions in consultation with the permitting agencies.

Mitigation Measure 3.3-13e: Conduct worker awareness training. SMUD will implement Mitigation Measure 3.3-1b, “Develop and Implement a Worker Environmental Awareness Program,” to include specific information regarding wetlands and other waters that occur on the project site and that either will be affected or have been identified for avoidance. Training will be conducted before the start of construction and will include information about the locations and extent of wetlands and other waters, methods of resource avoidance, permit conditions, and possible fines for violating permit conditions and federal and/or state environmental laws.

Mitigation Measure 3.3-13f: Restore temporarily affected waters of the United States. SMUD will require the construction contractor to restore temporarily disturbed wetlands and other waters of the United States by returning them to preconstruction conditions after construction in accordance with the project’s reclamation and restoration plan (Mitigation Measure 3.3-12c). SMUD will comply with all conditions and requirements of federal and state permits obtained for the project.

Mitigation Measure 3.3-13g: Compensate for loss of waters of the United States. The acreage and function of all wetlands and other waters lost as a result of project implementation will be replaced and restored on a “no-net-loss” basis.



SMUD will compensate for the loss of aquatic resources by purchasing credits from a USACE-approved mitigation bank; purchasing in-lieu fee credits; or restoring, preserving, creating, or enhancing similar habitats at another USACE-approved mitigation area as determined during CWA Section 404 and Section 401 permitting.

The minimum wetland compensation ratio to achieve no net loss of the functions and services of wetlands and other waters will be at least 1:1. Final ratios will be determined during the permitting process.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant loss, degradation and indirect disturbance of federally protected wetlands and other waters of the United States. Adoption and incorporation of Mitigation Measures 3.3-13a through 3.3-13g into the project will reduce the impact to a less-than-significant level. Therefore, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), Board finds that changes or alterations have been required or incorporated into the to reduce the significant impacts on federally protected wetlands and other waters of the United States to less-than-significant level.

Archaeological, Historical, and Tribal Cultural Resources

Impact 3.4-1: Impacts on unique archaeological resources. Previous investigations resulted in the documentation of four archaeological resources, a ranch complex, and the potential Montezuma Hills Rural Historic Landscape. These resources have been evaluated for the NRHP and CRHR but do not appear to be eligible; therefore, they are not considered unique archaeological resources. However, project-related ground-disturbing activities could result in the discovery of or damage to as-yet undiscovered archaeological resources as defined in Section 15064.5 of the State CEQA Guidelines.

Mitigation Measure 3.4-1a: Avoid or conduct subsurface testing and/or monitoring during construction in areas with high potential for the presence of buried archaeological sites. The construction contractor shall avoid conducting ground-disturbing activities in the few locations within the direct APE that have high or the highest potential for buried archaeological sites. If these areas cannot be avoided and project-related ground disturbance in those areas would be sufficiently deep that they could encounter buried archaeological resources, then additional actions may be necessary to mitigate any impacts on as-yet unidentified buried resources. These minimization efforts could include conducting subsurface testing before project construction and/or monitoring during the construction period. In the event that a historic-period archaeological site (such as concentrated deposits of bottles or bricks with makers marks, amethyst glass, or other historic refuse) is uncovered during grading or other construction activities, all ground-disturbing activity within

100 feet of the discovery shall be halted until a qualified archaeologist can assess the significance of the find. SMUD will be notified of the potential find and a qualified archeologist shall be retained to investigate its significance. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either a historical resource or a unique archaeological resource), the archaeologist shall work with SMUD to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic-period archaeological resources, they shall be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries shall be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, analyzes and interprets the results

Mitigation Measure 3.4-1b: Prior to the start of construction, SMUD shall provide worker awareness training to the construction contractor and SMUD's project superintendent regarding the potential for cultural and tribal cultural resources that could be encountered during ground disturbance, the regulatory protections afforded to such finds, and the procedures to follow in the event of discovery of a previously unknown resource, including notifying SMUD representatives. SMUD shall invite representatives of UAIC to periodically inspect the active areas of the project, including any soil piles, trenches, or other disturbed areas. UAIC shall be notified at least 48 hours prior to start of construction. In the event that tribal representatives or construction workers find evidence of potential tribal cultural resources, the procedures identified in Mitigation Measure 3.4-1c and 3.4-2 shall be implemented.

Mitigation Measure 3.4-1c: Halt ground-disturbing activity upon discovery of subsurface archaeological features. If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits are discovered during construction, all ground-disturbing activity shall cease within 100 feet of the resource(s) discovered. A qualified cultural resources specialist and Native American representatives and monitors from culturally affiliated Native American Tribes shall assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations shall be documented in the project record. For any recommendations made by interested Native American Tribes that are not implemented, the project record shall provide a justification explaining why the recommendation was not followed.

If the qualified archaeologist determines the find to be significant (because the find constitutes either a historical resource, a unique archaeological resource, or a tribal cultural resource), and if an adverse impact on a TCR, unique archaeology, or other cultural resource occurs, then SMUD shall consult with interested Native American groups and individuals regarding mitigation contained in PRC Sections 21084.3(a) and 21084.3(b) and State CEQA Guidelines Section 15370. Potential mitigation measures developed in coordination with interested Native American groups may include:

- preservation in place (the preferred manner of mitigating impacts on archaeological sites),
- archival research,
- replacement of cultural items for educational or cultural purposes,
- preservation of substitute TCRs or environments and/or subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan).

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant impacts on unique undiscovered archaeological resources. Adoption and incorporation of Mitigation Measures 3.4-1a, 3.4-1b, and 3.4-1c into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact on unique undiscovered archaeological resources to less-than-significant level.

Impact 3.4-2: Impacts on tribal cultural resources. Consultation with the Wilton Rancheria is ongoing and could result in the identification of TCRs as described under AB 52 and PRC Section 21074.

Mitigation Measure 3.4-2: Complete AB 52 consultation. SMUD concluded consultation with the UAIC and Wilton Rancheria under AB 52. If TCRs are identified that have the potential to be adversely affected by the project, SMUD shall notify Tribal Historic Preservation Officer Matthew Moore (THPO@auburnrancheria.com) and Lou Griffin (hgriffin@wiltonrancheria-nsn.gov) should an inadvertent discovery of TCRs occur, and will develop mitigation measures in consultation with interested Native American groups and individuals to minimize those impacts. These mitigation measures could include the following or equally effective mitigation measures (as identified in PRC Section 21084.3):

- (1) Avoidance and preservation of the resources in place, including but not limited to planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open

space, to incorporate the resources with culturally appropriate protection and management criteria.

- (2) Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including but not limited to the following:
 - (A) protecting the cultural character and integrity of the resource;
 - (B) protecting the traditional use of the resource; or
 - (C) protecting the confidentiality of the resource.
- (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- (4) Protecting the resource.
- (5) Preserving substitute TCRs, resources, or environments

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant impacts on tribal cultural resources. Adoption and incorporation of Mitigation Measure 3.4-2 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact on tribal cultural resources to less-than-significant level.

Impact 3.4-3: Impacts on previously unidentified human remains. Excavation during project construction could disturb previously undiscovered human remains.

Mitigation Measure 3.4-3: Halt ground-disturbing activity upon discovery of human remains. If human remains are discovered during any demolition/construction activities, potentially damaging ground-disturbing activities within 100 feet of the remains shall be halted immediately, and SMUD will notify the Solano County coroner and the NAHC immediately, according to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC shall be followed during the treatment and disposition of the remains. SMUD will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed.

PRC Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in significant impacts on previously unidentified human remains. Adoption and incorporation of Mitigation Measure 3.4-3 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact on previously unidentified human remains to less-than-significant level.

Geology and Soils

Impact 3.5-1: Substantial soil erosion or loss of topsoil. The proposed project has the potential to disturb approximately 91 acres during decommissioning, rehabilitation, and construction. Although these activities would be temporary, grading, excavation, and other ground-disturbing activities would expose soil and could result in accelerated erosion.

Mitigation Measure 3.5-1: Prepare and implement a SWPPP and associated BMPs. Before any ground-disturbing activities begin, the construction contractor shall apply for and maintain coverage under the Construction General Permit. The contractor shall prepare and implement a SWPPP, including an erosion control plan, that includes erosion control measures and construction waste containment measures to ensure that waters of the United States and the state are protected during and after project construction. The SWPPP shall include site design measures to minimize off-site stormwater runoff that might otherwise affect surrounding habitats. The SWPPP shall be provided to SMUD for review and approval before it is provided to the SWRCB. The Central Valley Regional Water Quality Control Board and/or San Francisco Bay Regional Water Quality Control Board will review and monitor the effectiveness of the SWPPP through mandatory reporting by SMUD and the construction contractor as required.

The SWPPP shall be prepared with the following objectives:

- Identify all pollutant sources, including sources of sediment, that may affect the quality of stormwater discharges from construction of the project.
- Identify BMPs that effectively reduce or eliminate pollutants in stormwater discharges and authorized nonstormwater discharges from the site during construction to the Best Available Technology/Best Control Technology standard.
- Provide calculations and design details as well as BMP controls for site runoff that are complete and correct.

- Identify project discharge points and receiving waters.
- Provide stabilization BMPs to reduce or eliminate pollutants following construction.

The construction contractor shall implement the SWPPP, including all BMPs, and shall inspect all BMPs during construction. Potential SWPPP BMPs could include but would not be limited to the following:

- Preserve existing vegetation where possible.
- Roughen the surfaces of final grades to prevent erosion, decrease runoff, increase infiltration, and aid in vegetation establishment.
- Place riparian buffers or filter strips along the perimeter of the disturbed area to intercept pollutants before off-site discharge.
- Place fiber rolls around on-site drain inlets to prevent sediment and construction-related debris from entering inlets.
- Place fiber rolls along down-gradient disturbed areas of the site to reduce runoff flow velocities and prevent sediment from leaving the site.
- Place silt fences down-gradient of disturbed areas to slow down runoff and retain sediment.
- Stabilize the construction entrance to reduce the tracking of mud and dirt onto public roads by construction vehicles.
- Stage excavated and stored construction materials and soil stockpiles in stable areas and cover or stabilize materials to prevent erosion.
- Stabilize temporary construction entrances to limit transport/introduction of invasive species and control fugitive dust emissions.

Finding: The Board finds that implementation of the Solano 4 Wind Project, during decommissioning, rehabilitation, and construction, could increase erosion and potentially result in loss of topsoil. Adoption and incorporation of Mitigation Measure 3.5-1 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact related to erosion and loss of topsoil to less-than-significant level.

Impact 3.5-2: Location of the project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project. Historically the project area

has experienced a low level of seismic activity; however, the potential exists for unstable soils to be present in the project area.

Mitigation Measure 3.5-2: Conduct a site-specific geotechnical investigation. Before final design of the project, the construction contractor shall complete a design level geotechnical investigation and report for the project, to be prepared by a California Registered Civil Engineer or Geotechnical Engineer. The report will set forth design and construction measures intended to ensure site stability in compliance with applicable seismic and building codes. The report shall address and make recommendations on the following:

- road, pavement, and parking area design;
- structural foundations;
- grading practices;
- erosion/winterization;
- special problems discovered on-site (e.g., groundwater, expansive/unstable soils); and
- slope stability.

All recommendations of the geotechnical report shall be incorporated into the construction plans and specifications that are reviewed and stamped by a licensed engineer of the appropriate discipline. SMUD must include the measures in the contract for implementation by the construction contractor for the duration of construction related activities

Finding: The Board finds that implementation of the Solano 4 Wind Project, during construction, could encounter unstable soils. Adoption and incorporation of Mitigation Measure 3.5-2 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact related to unstable soils to less-than-significant level.

Impact 3.5-3: Creation of a substantial risk as a result of expansive soils. Expansive soils are composed largely of clays, and extensive areas of clay soils are present on the project site. Although these soils are not expected to adversely affect WGTWTG foundations, clay soils are subject to shrinkage and swelling that can affect ancillary site improvements, such as roadways that are supported by shallow foundations.

Mitigation Measure 3.5-3: Implement Mitigation Measure 3.5-2, "Implement all recommendations from the geotechnical investigation." The construction

contractor shall implement Mitigation Measure 3.5-2, above, which requires the completion of a design level geotechnical investigation and report for the project and the implementation of all design and construction measures contained therein

Finding: The Board finds that implementation of the Solano 4 Wind Project could encounter expansive soils. Adoption and incorporation of Mitigation Measure 3.5-3 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact related to expansive soils to less-than-significant level.

Impact 3.5-4: Degradation or destruction of a unique paleontological resource. The proposed project has the potential to disturb approximately 91 acres during decommissioning, rehabilitation, and construction. The Montezuma Hills, including the project site, have been determined by Solano County to be a sensitive resource area with respect to paleontological resources. A site-specific paleontological investigation has not been prepared for the site to confirm the presence or absence of paleontological resources.

Mitigation Measure 3.5-4: Conduct a site-specific paleontological resource investigation and implement identified protective measures. Before the start of any ground-disturbing activities, SMUD shall have prepared a site-specific analysis of paleontological resources. At a minimum, the site-specific analysis shall include a review of the types of the geologic formation(s) present at the project site and a determination of the likelihood that those formation(s) would contain a “unique paleontological resource” as stated in Title 14, California Code of Regulations, Appendix G (the CEQA checklist). If a site-specific analysis determines that a project may have an adverse effect on a “unique paleontological resource,” project-specific mitigation measures shall be identified and implemented to address the following requirements:

- Cessation of work in the vicinity of the find and notification to SMUD.
- Retention of a qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan, which may include some or all of the following elements: a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings.
- Implementation of recommendations made by the paleontologist, where SMUD determines that such recommendations are necessary and feasible.
- All recommendations of the report shall be incorporated into the construction plans and specifications that are reviewed and stamped by a



licensed engineer of the appropriate discipline. SMUD must include the measures in the contract for implementation by the construction contractor for the duration of construction related activities.

Finding: The Board finds that implementation of the Solano 4 Wind Project, during construction, could encounter unique paleontological resources. Adoption and incorporation of Mitigation Measure 3.5-4 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact related to unique paleontological resources to less-than-significant level.

Hazards and Hazardous Materials

Impact 3.7-1: Exposure of people and the environment to hazardous materials. Construction, operation, and eventual decommissioning activities would involve the storage, transport, and/or handling of hazardous materials. Transport or use of these materials on-site could expose workers or the environment to hazards.

Mitigation Measure 3.7-1a: Implement Mitigation Measure 3.5-1, "Prepare and implement a SWPPP and associated BMPs." The contractor shall implement Mitigation Measure 3.5-1 listed in Section 3.5, "Geology, Soils, and Mineral Resources." This measure requires the preparation of a project-specific SWPPP and implementation of the SWPPP by the construction contractors, including all necessary BMPs.

Mitigation Measure 3.7-1b: Establish and implement an environmental training program. Before the start of construction, SMUD or its contractor shall establish an environmental training program to communicate environmental concerns and appropriate work practices to all field personnel. The training program shall cover the use of hazardous materials, waste management, spill prevention, emergency response measures, and proper implementation of BMPs. The program shall emphasize site-specific physical conditions to improve hazard prevention (e.g., identification of potentially hazardous substances) and shall include a review of all site-specific plans, including but not limited to the project's SWPPP, health and safety plan (as required by OSHA), fugitive dust control plan, and hazardous substances control and emergency response plan.

Mitigation Measure 3.7-1c: Prepare and implement a hazardous substance control and emergency response plan. Before the start of construction, SMUD or its contractor shall prepare a construction-specific hazardous substance control and emergency response plan. The plan shall include preparations for quick and safe cleanup of accidental spills; prescribe procedures for handling hazardous materials to reduce the potential for a spill during construction; and include an emergency response program to ensure quick and safe cleanup of accidental

spills. The hazardous substance control and emergency response plan shall also identify BMPs in the event a spill occurs. BMPs may include but are not limited to the following: use of oil-absorbent materials, tarps, and storage drums to contain and control any minor releases; and storage and use of emergency-spill supplies and equipment in locations adjacent to work and staging areas.

The hazardous substance control and emergency response plan shall identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, will be permitted.

Mitigation Measure 3.7-1d: Prepare and implement a spill prevention, control, and countermeasures (SPCC) plan. If more than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), SMUD's construction contractor shall prepare and implement a SPCC plan in accordance with state and federal requirements, including 40 CFR 112. The SPCC plan shall identify engineering and containment measures for preventing releases of oil into waterways. The SPCC plan shall be submitted to SMUD for review and approval before the start of operations, or during construction.

If less than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), this mitigation measure is not required.

Mitigation Measure 3.7-1e: Prepare and implement a hazardous materials business plan. If the project will use or store hazardous materials equal to or greater than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases, SMUD's construction contractor shall prepare a hazardous materials business plan that will conform with Solano County Environmental Health requirements. The contractor shall file the plan with SMUD annually. The hazardous materials business plan shall identify site activities; list the contact information for the business owner/operator; provide an inventory of hazardous materials used on-site; provide a facilities map; and identify an emergency response plan/contingency plan.

During the construction phase, if threshold quantities of any hazardous materials are stored on-site for more than 90 consecutive days, then the hazardous materials business plan shall be filed and maintained for as long as any of those thresholds are met or exceeded. During the operations phase, if the threshold for any hazardous materials is met or exceeded for more than 30 consecutive days, then the hazardous materials business plan shall be to SMUD and shall be maintained as long as the thresholds are met or exceeded. The regulations require annual submittal of the hazardous materials business plan as long as the project meets the conditions for the continued applicability of the regulations.

If less than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases will be used or stored on-site, this mitigation measure is not required.

Finding: The Board finds that implementation of the Solano 4 Wind Project could expose people and the environment to hazardous materials. Adoption and incorporation of Mitigation Measures 3.7-1a through 3.7-1e into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact due to potential upset conditions to less-than-significant level.

Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction. Construction could result in a short-term hazard to the public and/or the environment if subsurface hazardous materials were to be disturbed during construction activities.

Mitigation Measure 3.7-2a: Implement Mitigation Measures 3.7-1a through 3.7-1e. SMUD or its construction contractor shall implement Mitigation Measures 3.7-1a through 3.7-1e, listed above. These measures establish and require implementation of various plans to minimize the risk of accidental release of hazardous materials.

Mitigation Measure 3.7-2b: Delineate any construction areas where the presence of hazardous materials is known or suspected. Before the start of construction, SMUD or its contractor shall delineate construction areas where the presence of hazardous materials is known or suspected. Such areas shall be avoided during construction to the extent feasible. These areas include but are not limited to abandoned gas wells and underground gas pipelines. Underground utilities, such as gas pipelines and high-voltage lines, shall be identified and marked clearly. If necessary, appropriate encroachment permits shall be obtained before work begins.

A Spill Discovery Response Plan shall be developed before construction begins. The plan shall be implemented in the event that hazardous materials are unexpectedly encountered during construction. The plan shall include instructions for work crews to stop work immediately, notify the appropriate emergency response agency, and in the case of natural gas pipelines, notify the pipeline operator.

Mitigation Measure 3.7-2c: Maintain access to gas wells. Should a gas well location be verified, SMUD and its construction contractor shall implement the following measures:

- Maintain physical access to any gas well encountered.
- Ensure that the abandonment of gas wells is to current standards.
- If one or more unknown wells is discovered during project development, immediately notify the California Department of Conservation, Division of

Oil, Gas, and Geothermal Resources so that the newly discovered well(s) can be incorporated into the records and investigated. Any wells found during implementation of the project, and any pertinent information obtained, shall be communicated to the Solano County Recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells.

- Avoid performing work on any oil or gas well without written approval from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources in the form of an appropriate permit. This includes but is not limited to mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work.

Finding: The Board finds that implementation of the Solano 4 Wind Project, during construction, could expose people and the environment to subsurface hazardous materials. Adoption and incorporation of Mitigation Measures 3.7-2a, 3.7-2b, and 3.7-2c into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact due to potential upset conditions to less-than-significant level.

Impact 3.7-3: Safety hazard to air traffic. The project site lies within the planning boundary of the Travis AFB LUCP, which contains policies designed to promote land use compatibility with airport operations. Placement of WTGs have the potential to intrude into navigable airspace, thereby increasing the risk of aircraft collision, or causing interference with radar signals used by air traffic control.

Mitigation Measure 3.7-3: Mark and light wind turbine generators during construction. SMUD will e-file FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration, at least 60 days before the start of construction, so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary.

To ensure proper conspicuity of turbines at night during construction, all WTGs shall be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting shall be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights shall be installed and operated at each level as construction progresses.

An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, WTGs shall be lit with self-contained, solar-powered light-emitting diode (LED) steady red light fixtures that meet the photometric requirements of an FAA Type L-810 lighting system. The lights shall be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a Notice to Airmen (NOTAM) (D) to avoid lighting WTGs within the project site until completion of the entire project is prohibited.

This measure includes temporary construction equipment such as cranes and derricks, which may be used during actual construction of the structures. However, this equipment shall not exceed a height of 200 feet. Separate notice shall be provided to the FAA for any equipment taller than 200 feet.

Finding: The Board finds that implementation of the Solano 4 Wind Project could intrude into navigable airspace or cause interference with radar signals used by air traffic control. Adoption and incorporation of Mitigation Measure 3.7-3 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact to air traffic to less-than-significant level.

Impact 3.7-4: Exposure of employees and the public to hazards from accidental rotor failure. If a blade on a project WTG were to fail, the blade could become a projectile, exposing employees and the public to a hazard. As part of final design and siting, SMUD requires that the contractor prepare a blade throw analysis to inform the final site layout, and ensure sufficient setback is provided to minimize the risk of exposure to such a hazard.

Mitigation Measure 3.7-4: Conduct Safety Evaluation of WTGs. The Contractor shall provide a safety evaluation of the proposed siting plan, and ensure that the design and layout of the project considers the safety evaluation. The Contractor's safety evaluation shall include an analysis of the following types of failure that could occur:

- a. Blade Throw Risk Analysis: Probability of Loss of an entire blade by failure at the hub attachment.
- b. Tower Failure. Complete failure of the tower, particularly at the base.
- c. Rotor Delamination. Failure of the fiberglass rotor skin, resulting in flying fragments.
- d. Blade-Throw Strike. Impact of a failed rotor blade on the tubular tower

Finding: The Board finds that implementation of the Solano 4 Wind Project could expose employees and the public to hazards from accidental rotor failure. Adoption and



incorporation of Mitigation Measure 3.7-4 into the project will reduce the impact to a less-than-significant level. Therefore, the project with mitigation will not cause significant safety hazard impacts due to accidental rotor failure.

Impact 3.7-5: Exposure of people or structures to a significant risk of loss, injury, or death involving wildfires. The project site is not located in an area classified as a High Fire Hazard Severity Zone. Although the project would adhere to applicable fire regulations, the use of construction equipment in grass-covered areas could expose people or structures to a significant fire risk.

Mitigation Measure 3.7-5a: Prepare and implement a grass fire control plan. SMUD or its construction contractor will develop a grass fire control plan. The plan shall be implemented for use during construction and operation of the project to reduce potential impacts on public services relative to fire protection services in the project area. The plan shall include notification procedures and emergency fire precautions, as discussed in Section 4.8, "Hazards and Hazardous Materials." This shall include the training of construction workers in the use of firefighting equipment available on-site (e.g., fire extinguishers) and communicating with the Montezuma Fire Protection District. Additionally, the nearby Montezuma Fire Protection District stations are equipped for grass fires, and the proposed access roads for WTG maintenance shall be used to improve access by fire trucks during emergency situations and serve as a fire break. The operations and maintenance building shall be designed to SMUD's safety standards and shall include a fire alarm. In addition, construction and maintenance crews shall be trained in fire prevention, carry fire extinguishers in all vehicles, and have access to one or more water trucks.

Mitigation Measure 3.7-5b: Implement Mitigation Measure 3.11-1b, "Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions." SMUD will implement Mitigation Measure 3.11-2 listed in Section 3.11, "Transportation and Traffic." This measure requires the development and implementation of a plan to maintain emergency access during WTG transport and throughout the construction period.

Finding: The Board finds that implementation of the Solano 4 Wind Project could expose people and structures to a significant fire risk. Adoption and incorporation of Mitigation Measures 3.7-5a and 3.7-5b into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact fire risk to people and structures to less-than-significant level.

Hydrology and Water Quality

Impact 3.8-1: Short-term degradation of water quality. Decommissioning of existing wind power facilities, project construction, and future project decommissioning or

repowering activities would require the grading and movement of soil. Such activities could result in erosion, sedimentation, and discharge of other nonpoint-source pollutants to stormwater, which could then drain off-site and degrade local water quality.

Mitigation Measure 3.8-1a: Implement Mitigation Measure 3.5-1, “Prepare and implement a SWPPP and associated BMPs.” SMUD shall prepare and the construction contractor to implement Mitigation Measure 3.5-1 listed in Section 3.5, “Geology, Soils, and Mineral Resources.” This measure requires the construction contractor to implement a SWPPP, including all necessary BMPs.

Mitigation Measure 3.8-1b: Implement Mitigation Measure 3.7-1b, “Establish and implement an environmental training program.” The construction contractor shall implement Mitigation Measure 3.7-1b listed in Section 3.7, “Hazards and Hazardous Materials.” This measure requires SMUD to establish and require implementation of an environmental training program for all field personnel that communicates spill prevention, emergency response measures, and proper implementation of BMPs.

Mitigation Measure 3.8-1c: Implement Mitigation Measure 3.7-1c, “Prepare and implement a hazardous substance control and emergency response plan.” The construction contractor shall implement Mitigation Measure 3.7-1c listed in Section 3.7, “Hazards and Hazardous Materials.” This measure requires SMUD to prepare and implement a construction-specific hazardous substance control and emergency response plan for quick, safe cleanup of accidental spills.

Mitigation Measure 3.8-1d: Implement Mitigation Measure 3.7-1d, “Prepare and implement a spill prevention, control, and countermeasures plan.” The construction contractor shall implement Mitigation Measure 3.7-1d listed in Section 3.7, “Hazards and Hazardous Materials.” This measure requires SMUD to prepare and the construction contractor to implement a spill prevention control and closures plan to prevent the discharge of petroleum products into waterways.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in short-term degradation of water quality. Adoption and incorporation of Mitigation Measures 3.8-1a through 3.8-1d into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant short-term degradation of water quality impact to less-than-significant level.

Transportation and Circulation

Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses. Construction-related transport of WTG components could result in hazardous conditions on state routes and local roadways because of the transport vehicle’s weight, length, width, height, and speed.

Mitigation Measure 3.11-1a: Create and implement a traffic control plan and notify the public of anticipated roadway obstructions. SMUD or its construction contractor will work with Caltrans, Solano County, and the City of Napa to determine the lowest hourly traffic flows on affected facilities and develop a traffic control plan. The traffic control plan shall specify travel times and days and provide for public notification of anticipated roadway obstructions before transporter travel days. Traffic control plan measures shall include the use of pilot cars for oversize loads; traffic safety measures, such as warning signs; coordination with local jurisdictions; and safety personnel to direct traffic as needed. To minimize impacts on roadway traffic flows, transporters shall travel under loaded conditions during off-peak hours and possibly during evenings or at night. The final plan shall be submitted to all affected agencies for review and approval. After agency approvals have been received, the traffic control plan shall be implemented during transport of the WTG components.

Mitigation Measure 3.11-1b: Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions. SMUD or its construction contractor will work with affected emergency services providers to develop and implement a plan to maintain emergency access during transport of WTG components and throughout the construction period. The plan shall identify alternative emergency access routes; the need to station emergency equipment in areas where access will be reduced; and notification protocols between SMUD, its contractors, and affected providers. The final plan shall be submitted to all affected agencies for review and approval. After agency approvals have been received, the emergency access plan shall be implemented during transport of WTG components and throughout the construction period as necessary.

Mitigation Measure 3.11-1c: Obtain an agency transportation permit for each load exceeding weight, length, width, and height standards. SMUD or its construction contractor will submit an application to Caltrans, Solano County, and the City of Napa for a transportation permit for each load that exceeds weight, length, width, or height standards. The applications shall identify the specific transporter to be used and provide details about the turbine components' load specifications, the requested route, and the time and date of transport. All permit conditions shall be implemented during transport of WTG components.

Mitigation Measure 3.11-1d: Improve roadways to enable safe use or use shorter transporters, and obtain agency transportation permits for transport of extra-legal length vehicles. SMUD or its construction contractor will make improvements to public roads to enable delivery of WTG components and provide access for construction equipment. These improvements shall accommodate all turning movements of the maximum-size transporter. A detailed topographic survey shall be conducted to determine the exact limits, and to identify additional areas that

may be affected. All roadway improvements shall be designed and implemented in close cooperation with Solano County (and other jurisdictions, if applicable).

An alternative mitigation measure is to use shorter transporters to reduce the impact, although this measure is also expected to require a reduction in the size of the WTG components, which likely will increase the number of trips if the overall turbine dimensions remain the same.

Finding: The Board finds that implementation of the Solano 4 Wind Project could result in hazardous conditions on state routes and local roadways because of the transport vehicle's weight, length, width, height, and speed. Adoption and incorporation of Mitigation Measures 3.11-1a through 3.11-1d into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant transportation impact due to construction-related transport to less-than-significant level.

Impact 3.11-2: Short-term increase in construction traffic on physically deficient roadway segments. Construction activities would result in a short-term increase in heavy vehicle traffic on state routes and local roads. The project could result in the degradation of pavement conditions along these roadways.

Mitigation Measure 3.11-2: Monitor the physical condition of roadway segments along primary access routes to the project site and restore the physical condition of affected roadways to the extent damaged by the project. SMUD or its construction contractor will conduct a preconstruction survey and assessment of existing pavement conditions along SR 12 east, Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. If the preconstruction pavement conditions are deficient, the preconstruction pavement analysis shall establish the baseline for required improvements. If the preconstruction pavement conditions are acceptable, improvements shall be required only if the postconstruction pavement condition is deficient, and only to the extent that the project demonstrably contributed to such deficiencies. If deficient following construction, any segments of SR 12 east and Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road that are affected by the project shall be returned to preconstruction conditions after construction. Implementing this measure will ensure that construction activities will not worsen pavement conditions, relative to existing conditions.

Before construction, SMUD will enter into mitigation agreements with Caltrans (for SR 12 east) and Solano County (for Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road) to verify the location, extent, timing, and fair-share cost to be paid by SMUD for any necessary pre- and postconstruction physical improvements. The fair-share amount will be

either the cost to return the affected roadway segment to its preconstruction condition or a contribution to programmed planned improvements. Repairs may include overlays or other surface treatments.

Finding: The Board finds that implementation of the Solano 4 Wind Project, during construction, could result in the degradation of pavement conditions along state routes and local roads due to a short-term increase in heavy vehicle traffic. Adoption and incorporation of Mitigation Measure 3.11-2 into the project will reduce the impact to a less-than-significant level. Thus, pursuant to PRC section 21081(a)(1) and CEQA Guidelines section 15091(a)(1), changes or alterations have been required or incorporated into the project to avoid or substantially lessen the potentially significant impact degradation of pavement conditions along construction transportation routes to less-than-significant level.

3. Issues for which the project would have a Less-than-Significant Impact

Aesthetics

Impact 3.1-1: Project impacts on scenic vistas and potential for substantial degradation of existing visual character or quality of public views of the site and surroundings, including those within the viewshed of a state or locally designated scenic highway. Project decommissioning, construction, and eventual decommissioning activities would be visible to motorists, recreationists, and residents near the project site; however, these changes in views would be temporary. Placement and operation of WTGs under the Solano 4 Project reduces the number of WTGs operating onsite but places taller WTGs in replacement. Views would remain of a utility scale wind energy facility and any permanent change in views would be incremental. Under either condition WTGs are the dominant visual feature. The greatest visual change would be seen from Collinsville and West Sherman Island. Therefore, the project would not result in a substantial degradation of visual character. This impact would be less than significant. Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.1-3: Shadow flicker effects. The project would not result in substantial shadow flicker. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Biological Resources

Impact 3.3-3: Loss of foraging and nesting habitat for resident and migratory birds (nonraptors). Project construction would result in permanent and temporary impacts on foraging and nesting habitat for resident and migratory birds. Because the permanent loss of foraging and nesting habitat caused by the project would be small, and because the habitat types that would be permanently lost are abundant in the project area, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.3-5: Removal and modification of raptor nesting, foraging, and roosting habitat during construction. Project construction would result in permanent and temporary impacts on raptor nesting and foraging habitat. This impact on nesting habitat would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.3-8: Construction impacts on bats and bat habitat. Project construction would result in temporary disturbance of foraging bats and loss of foraging habitat. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.3-10: Loss of special-status plants and their habitat. Project construction activities could degrade or destroy special-status plants and their habitat. However, because no special-status plants are present on the project site, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.3-11: Loss of or direct impacts on riparian habitat. Project construction activities could degrade or destroy special-status plants and their habitat. However, because no special-status plants are present on the project site, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.3-14. Adverse effects on migratory corridors or nursery sites. Project construction and operation could adversely affect migratory corridors or nursery sites. Because no migratory corridors or nursery sites are present on the project site, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Archaeological, Historical, and Tribal Cultural Resources

Impact 3.4-4: Indirect impacts on a historical resource. The Hastings Adobe (a historical resource listed in the NRHP and CRHR) is located outside of the project's direct APE. Project-related construction vibration and visual effects would not result in an indirect substantial adverse change. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Greenhouse Gas Emissions and Energy

Impact 3.6-1: Direct or indirect generation of GHG emissions that may have a significant impact on the environment or conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHGs. The fundamental purpose of the project is to reduce GHG emissions produced in the SMUD service area and in California, or to support beneficial uses there. The project is expected to reduce GHG emissions by approximately 2,446,322 MTCO₂e over the project's 35-year life. Although project construction activities would make a relatively



small contribution of 4,603 MTCO₂e to overall GHG emissions, implementing the project would not result in a substantial cumulative contribution to GHG emissions or conflict with any applicable plan, policy, or regulation regarding GHGs. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.6-2: Impacts of climate change on the project. Climate change is anticipated to result in various changes to local weather patterns in the future. The project does not propose any new residences and would not expose people to increased risks from climate change. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.6-3: Wasteful, inefficient, and unnecessary consumption of energy. Project construction activities would consume energy. However, because the project, once operational, would serve as a power generation facility and increase SMUD's capacity to generate power, the project would not result in the wasteful, inefficient, and unnecessary consumption of energy. Therefore, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Hazards and Hazardous Materials

Impact 3.7-4: Exposure of employees and the public to hazards from accidental rotor failure. If a blade on a project WTG were to fail, the blade could become a projectile, exposing employees and the public to a hazard. As part of final design and siting, SMUD requires that the contractor prepare a blade throw analysis to inform the final site layout, and ensure sufficient setback is provided to minimize the risk of exposure to such a hazard. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Hydrology and Water Quality

Impact 3.8-2: Alteration of the site's existing drainage pattern. The project would include limited grading of the project site, with only a small portion of the site to be developed with compacted materials and concrete pads. Therefore, installation of project facilities would not alter existing on-site drainage patterns and flow paths sufficiently to alter the way in which stormwater flows onto and off the site during major events. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.8-3: Long-term degradation of water quality. The project would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Overall, if the system is not designed properly, the project could cause or contribute to a long-term increase in discharges of urban contaminants (e.g., oil and grease, trace metals and organics, trash) into the stormwater drainage system compared with existing conditions. SMUD would comply with federal and state stormwater management regulations and would incorporate appropriate BMPs into project design to prevent long-term degradation



of water quality. Therefore, this impact would be less than significant. that it would have excess water capacity during project construction, this impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.8-4: Substantial decrease in groundwater supplies. The project is expected to use up to several million gallons of water during construction for dust control and other activities. Water use would vary over time depending on the construction phasing. SMUD or its contractor plans to obtain construction water from the City of Rio Vista. Because Rio Vista has forecast. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Land Use

Impact 3.9-1: Division of an established community. The proposed project is not located within an existing community and does not have any features that would divide a community. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.9-2: Conflict with a plan, policy, or regulation adopted to avoid or mitigate an environmental effect. The proposed project could be found consistent with local plans, policies, and regulations. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Noise

Impact 3.10-1: Generation of a Substantial Temporary Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies due to Short-term construction noise impacts. Proposed construction areas are located mostly far from existing noise-sensitive receptors, the only closest receptor (LT-2) being approximately 275 feet from where construction activities (underground cabling) would occur. Most noise-generating construction activity would be performed during daytime hours, when people are less sensitive to noise. This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

Impact 3.10-2: Temporary and Short-Term Exposure of Sensitive Receptors to, or Temporary and Short-Term Generation of, Excessive Groundborne Vibration. Construction activities, including but not limited to the use of large dozers, would not expose existing nearby sensitive residential or historical receptors and structures to levels of ground vibration that could result in structural damage and/or disturbance to people occupying nearby buildings because of the project's distance from the closest sensitive receptor (275 feet). This impact would be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required.

d. Alternatives

In compliance with CEQA and the CEQA Guidelines, Chapter 6, “Alternatives” of the Draft EIR evaluated a reasonable range of alternatives to the project, including the No Project Alternative, followed by identification of an environmentally superior alternative. The EIR examined each alternative’s feasibility and ability to meet the following Project Objectives:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity, and reduce SMUD’s exposure to price volatility associated with electricity and natural gas.
- Assist SMUD in achieving the Board of Directors’ directive of using dependable renewable resources to meet SMUD’s RPS obligations. This goal is consistent with Senate Bill 100, which was signed into law in 2018.
- Develop an economically feasible wind project that will deliver a reliable supply of up to 91 MW of electrical capacity at the point of interconnection.
- Accommodate the long-term viability of agricultural use within the Montezuma Hills.

Potential alternatives found to be clearly infeasible, including offsite alternatives and alternative technologies, were rejected because they would not achieve most of the basic project objectives without further environmental review in Section 6.2.3 of the Draft EIR.

The No Project Alternative and Reduced Turbine Height Alternative that might have been feasible and that would attain some of the project Objectives, were carried forward and analyzed with regard to whether they would reduce or avoid significant impacts of the project.

In connection with certification of the Final EIR for the project, the Board certifies that it has independently reviewed and considered the information on alternatives provided in the Final EIR and the record of proceedings. The Board finds that no new alternatives have been identified and that the feasibility of the analyzed alternatives has not changed since the Draft EIR was circulated for public review. The Board certifies that it has independently reviewed and considered the information on alternatives provided in the Final EIR and the administrative record, and find, for the reasons set forth below, that each of the following alternatives cannot feasibly attain, either at all or to the same extent as the proposed Project, one or more of the project Objectives, is otherwise infeasible or fails to avoid or substantially lessen the significant effects of the Solano 4 Wind Project.

1. No Project Alternative

Under this alternative, the project would not be constructed on the project site, and as a result, none of the permits or approvals that would be required by SMUD and various



permitting agencies for the project would occur. The existing WTGs on Solano Phase 1 would continue to generate approximately 15MW although increased maintenance needs would result in higher costs to operate over time. This alternative would not go as far toward meeting the objectives identified in Section 6.2.1, "Attainment of Project Objectives." No impacts would occur under this alternative.

The No Project Alternative would not meet any of the project objectives because a wind energy facility would not be constructed on the project site. Because this alternative would not attain any project objectives and for the reasons set forth above, the No Project Alternative is rejected by the Board from further consideration.

Findings: Based on the entire record, the SMUD Board of Directors finds that while the No Project Alternative will substantially avoid effects to the public and environment (air quality) associated with the Solano 4 Wind Project, the No Project alternative is infeasible because it will not achieve any of the identified Project Objectives.

2. Reduced Turbine Height Alternative

Under this alternative, SMUD would replace existing WTGs with reduced turbine height WTGs (turbine height of 138 meters) compared to the proposed project (up to 22 new WTGs with turbine height of 150-180 meters) for a total of 27 WTGs that would be placed on the property (13 at Solano 4 east and 14 at Solano 4 west) in a configuration similar to that of the proposed project. Total capacity for the Reduced Turbine Height Alternative would be 62 MW compared to the 91 MW for the proposed project.

Environmental Analysis

Aesthetics

Under this alternative, the visible elements of the WTG facility would be reduced in height (138 meters tall with hub height of 80 meters) compared to the proposed project which could install 150 meter WTGs with a hub height of 105 meters. Smaller structures are less visible at distance and are compatible with the surrounding wind energy projects that utilize older, smaller WTGs. Under either development scenario, impacts to nighttime views would be minimized through incorporation of ADLS technology that activates aircraft warning lights only when an aircraft is detected. Therefore, overall visual impacts under this alternative would be less than those of the project.

Air Quality

Selection of the Reduced Turbine Height Alternative would introduce 27 WTG compared to the 22 WTG for the project. As such, all construction activities and resulting criteria air pollutants would be similar to, but slightly greater than, those of the project.

Under either development scenario, construction activity would emit NOX and PM10 at levels that could exceed YSAQMD and BAAQMD daily emissions thresholds for these

pollutants. Similar to the project, implementation of Mitigation Measure 3.2-1 would reduce construction-related exhaust and dust emissions but not below the threshold and this impact would remain at significant levels. On an operational basis, neither the Proposed Project nor Reduced Turbine Height Alternative would conflict with an adopted plan or policy adopted for the purpose of environmental protection. Thus, assuming the implementation of Mitigation Measure 3.2-1, short-term construction air quality impacts would be similar to, but slightly greater than, the project.

Biological Resources

The Reduced Height Alternative would result in construction of 27 smaller, WTGs than the 22 WTGs proposed by the project. Therefore, the Reduced Turbine Height Alternative would result in more ground disturbance than would the project. Placement of a greater number of tall structures in the area may increase the chances for protected birds to hit obstacles while flying. Direct and indirect effects to waters and jurisdictional resources could result from grading, trenching, pile driving, and creation of impervious surface adjacent to wetlands and non-wetland waters under either development scenario. Potential indirect effects include potential changes in hydrology through modification of surface flows or perched groundwater flows, penetration of the hardpan, shading of wetlands, and reduced water quality caused by erosion and siltation or herbicide use (chemical runoff or drift). Implementation of the mitigation measures identified in Section 3.3, “Biological Resources,” would apply to this alternative, but like the project, would not reduce impacts on biological resources to less-than-significant levels. Overall, impacts to biological resources would be greater compared to the project.

Archaeological, Historical, and Tribal Cultural Resources

Under this alternative, a greater number of WTGs would be constructed on the project site. This alternative may result in greater disturbance to unknown archaeological sites because additional roadways would be required to access the additional WTGs and more foundations would be created compared to the project. Because earthwork and ground-disturbing activities would occur under this alternative, implementation of Mitigation Measures 3.4-1, 3.4-2, and 3.4-3 would apply, and would reduce impacts to less-than-significant levels. Overall, impacts under this alternative would be greater than those of the project since more land disturbance would likely occur.

Geology and Soils

Implementation of this alternative would involve grading and other ground-disturbing activities similar to the project, but over a slightly larger footprint. Therefore, this alternative would have similar impacts associated with geological hazards and soil erosion compared to the project. Implementation of Mitigation Measures 3.5-1 through 3.5-3 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in more geology and soils impacts compared to the project.

Greenhouse Gas Emissions and Energy

Under this alternative, a greater number of WTGs would be constructed on the project site compared to the project. As such, all construction activities and resulting GHG emissions would be similar to, but slightly greater than, the project. A reduction in the annual generation capacity of the facility would also result in a reduction in avoided GHG emissions. Thus, while this alternative would result in a slight reduction of construction-related GHG emissions, the reduction would be smaller than the amount of GHG avoided emissions lost through the reduction of wind energy capacity compared to the proposed project. Potential impacts of climate change on this alternative would be the same as the project because the site would be unchanged in location and the same County policies are in place to respond to the effects of climate change. Thus, GHG impacts under this alternative would be less than significant.

Hazards and Hazardous Materials

Implementation of this alternative would involve the storage, transport, and handling of hazardous materials; exposure of or disturbance to contaminated soils or asbestos containing materials; and exposure of people or structures to a significant fire risk, similar to the project. Implementation of Mitigation Measures 3.7-1a through -1d, -2a through -2d, and -3a through -3c would apply to this alternative, and would reduce these impacts to less-than-significant levels.

The Reduced Turbine Height Alternative would introduce structures that exceed the 200 foot threshold. Both development scenarios would be subject to review by the FAA under Part 77 and must implement lighting and other physical measures applied during this process to avoid posing an obstacle to aviation by intruding into flight patterns or interfering with operation of radar equipment. The FAA found the proposed project was not a hazard to aviation, and while WTGs may be detected by radar sensors, this would not cause an unacceptable adverse impact on ATC operations. The placement of more WTGs on the project site may increase radar interference compared to the proposed project as the density of WTGs is greater than for the project. Overall, the Reduced Turbine Height Alternative may result in greater hazards or hazardous materials impacts compared to the project.

Hydrology and Water Quality

Implementation of this alternative would involve grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in stormwater runoff that could degrade local water quality. Installation of the WTGs under either development scenario would not alter existing onsite drainage patterns. Implementation of Mitigation identified for the proposed project would reduce these impacts to less-than-significant levels. Overall, this alternative would result in similar hydrology and water quality impacts compared to the project.

Land Use

The Reduced Turbine Height Alternative would be sited on land designated for agricultural use. WTGs are permitted in the agricultural designation and would be compatible with the existing grazing and farming occurring on neighboring parcels and no conflicts with regulatory plans or policies adopted for the protection of environmental resources would occur. Impacts under this alternative would be similar to those of the project.

Noise

The Reduced Turbine Height Alternative would require slightly more heavy truck trips to deliver components to the site as more turbines would be placed on the site compared to the project. As such, all construction activities would be slightly greater to the proposed project and, therefore, construction noise impacts would be slightly greater. Under either development scenario, noise impacts are less than significant, so the slight increase in construction noise impacts is not substantially greater than those for the project. Therefore, overall impacts under this alternative would be similar to those of the project.

Transportation and Traffic

The Reduced Turbine Height Alternative would require slightly more heavy truck trips needed to haul more WTGs than those for the project. Operational trips would be similar since the O&M activity would not change. As such, all construction activities would be similar but slightly greater to the proposed project and, therefore, construction-related increases to vehicle traffic on the surrounding roadway network and resulting degradation of pavement conditions would be similar. Implementation of Mitigation Measures 3.10-2a and -2b would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in similar transportation and traffic impacts compared to the project.

This alternative would meet most of the project objectives. However, reducing the height of the WTGs would result in a project that produces a smaller amount of energy (62 MW compared to the 92 MW for the proposed project) at a higher price. This would result in reduced ability to comply with California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board Strategic Directive 9. Because this alternative would not attain project objectives and for the reasons set forth above, the Reduced Turbine Height Alternative is rejected by the Board from further consideration.

Findings: Based on the entire record, the SMUD Board of Directors finds that because the Reduced Height Alternative does not reduce unavoidable significant impacts to air quality and will not achieve any of the identified Project Objectives to the same degree as the project, the Reduced Height Alternative is deemed to be infeasible.

3. Environmentally Superior Alternative

CEQA requires the identification of an environmentally superior alternative. Section 15126.6(e)(2) of the CEQA Guidelines states that if the No Project Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. The impact of the respective alternatives is identified in Table 6-1 of the Draft EIR, followed parenthetically by the comparison to the impact of the proposed Project.

As shown in the Executive Summary Chapter of the Draft EIR, there would be significant impacts associated with the project. These impacts are related to aesthetics; air quality; biological resources; historic, archaeological, and tribal cultural resources; geology and soils; hazards and hazardous materials; hydrology and water quality; and transportation. Each of these impacts would be reduced to a less-than-significant level through the adoption and implementation of the mitigation measures adopted in the findings on the project, with the exception of significant and unavoidable impacts to air quality from construction activities as noted above. The No Project Alternative would have no impacts. The Reduced Turbine Height Alternative would have similar environmental impacts as the proposed project.

When considering objectives, the Solano 4 Wind Project would meet all of the project objectives, as stated in Chapter 2, “Project Description.” In contrast, because there would be no project under the No Project Alternative, it would fail to meet any of the project objectives. The Reduced Turbine Height Alternative achieves some but not all of the project objectives and does not reduce unavoidable significant impacts to air quality. The Reduced Turbine Height Alternative was responsive to one of the primary issues raised by the ALUC, turbine height. Ultimately, while Reduced Turbine Height Alternative would lessen one impact and have similar impacts to the project, the DEIR concluded that the proposed Project would be the environmentally superior alternative. Such a limited range of alternatives is appropriate where, as here, there are so few variations or significant impacts of the project. (See, e.g. *Marin Municipal Water Dist. v. KG Land Cal. Corp.* (1991) 235 Cal.App.3d 1652, 1666 [upheld EIR that evaluated two alternatives—a no project alternative and conservation alternative].) The SMUD Board of Directors has the authority to make to adopt a qualified exemption under Government Code Section 53096 based on compliance with notice and hearing proceedings and finding there is no feasible alternative to the proposal.

e. Additional Findings

1. These Findings incorporate by reference in their entirety the text of the EIR prepared for the Solano 4 Wind Project. Without limitation, this incorporation is intended to elaborate on the scope and nature of the project, related mitigation measures, and the basis for determining the significance of such impacts.

2. All of the environmental effects of the Solano 4 Wind Project have been adequately addressed in the EIR and have been mitigated or avoided.
3. Section 15093(b) of the State CEQA Guidelines provides that when the decision of the public agency results in the occurrence of significant impacts that are not avoided or substantially lessened, the agency must state in writing the reasons to support its actions. The Findings adopted by the Board in connection with its approval of the Solano 4 Wind Project EIR and certification that the associated EIR addressed all of the potentially significant impacts associated with implementation of the Solano 4 Wind Project. The EIR concluded that the air quality impacts (project-specific and cumulative) associated with the construction of the project would be significant and unavoidable even with the adoption of identified mitigation measures. As a result, the adoption of a Statement of Overriding Considerations for the Solano 4 Wind is required.
4. CEQA Guidelines section 15074 requires the Lead Agency approving a Project to adopt a mitigation monitoring and reporting program for changes to the project that it adopts or makes a condition of Project approval in order to ensure compliance during Project implementation. The Board adopts the mitigation monitoring and reporting program for Solano 4 Wind Project and the specific mitigation measures will be monitored in conjunction with SMUD's Final EIR Mitigation Monitoring Program and Reporting process.

f. Record of Proceedings

For purposes of CEQA and these Findings, the record of proceedings for the Solano 4 Wind Project (Record of Proceedings) consists of the following documents and other evidence, at a minimum:

- The Notice of Preparation (NOP) distributed on January 9, 2019 and comments received during its 30-day public review;
- The EIR for the project, including, without limitation, the Draft EIR, Final EIR, and all of its appendices;
- All studies, EIRs, maps, rules, regulations, guidelines, permits and other documents and materials incorporated by reference in any portion of the EIR;
- All presentation materials from every noticed public meeting and public hearing for the project;
- The Mitigation Monitoring and Reporting Program for the proposed Project (MMRP);
- Matters of common knowledge, including but not limited to federal, state and local laws and regulations, including, without limitation, SMUD's adopted CEQA Procedures and other adopted plans, policies and programs;



- Any documents expressly cited in these Findings and/or in the Statement of Overriding Considerations; and
- All materials not otherwise identified which are expressly required to be in the Record of Proceedings by PRC section 21167.6(e).

g. Custodian and Location of Records

The documents and other materials which constitute the Record of Proceedings are located at the Headquarters Campus. Copies of those documents are, and at all relevant times, have been and will be available upon request at the Customer Service Center (6300 S Street, Sacramento, CA 95817). The custodian of the Record of Proceedings may be contacted as follows:

Ammon Rice
Sacramento Municipal Utility District
6201 S Street, MS B203
Sacramento, CA 95817-1899
(916) 732-7466
Ammon.rice@smud.org

This information is provided in compliance with PRC Section 21081.6(a)(2) and CEQA Guidelines Section 15091(e).

IV. Project Benefits

SMUD needs new renewable and carbon-free resources to meet California's mandate for renewable procurement (60% by 2030)¹ and to meet its Board directed goals. SMUD's Integrated Resource Plan (IRP), adopted by its Board in 2018, guides decisions on future resource developments, and lays out a pathway to achieve a Net Zero greenhouse gas (GHG) emissions goal by 2040 through investment in electrification while significantly expanding renewable and carbon-free resources in its portfolio.² In July 2020, SMUD's Board declared a climate emergency and adopted a resolution calling for SMUD to take significant and consequential actions to eliminate its greenhouse gas emissions by 2030, and directed staff to develop a plan to achieve this goal. SMUD's 2030 Zero Carbon Plan (2030 Plan³) has been approved by the Board and calls for the addition of up to 2,300 MW of new renewables and 1,100 MW of batteries by 2030 – more than double the

¹ Sen. Bill No. 100, approved by Governor, Sept. 10, 2018.

² <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/Integrated-Resource-Plan.ashx>.

³ <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/ZeroCarbon/2030-Zero-Carbon-Plan-Technical-Report.ashx>



amount SMUD was planning for in its 2018 IRP. The 2030 Plan calls for maximizing new cost-effective utility-scale renewables within our service territory (up to 1,500 MW utility solar), but also requires SMUD to add additional resources that it does not have locally, such as wind and geothermal.

Thus, the fundamental purpose of the Solano 4 Wind Project is to contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity, and reduce SMUD's exposure to price volatility associated with electricity and natural gas. The Solano 4 Wind Project would assist SMUD in achieving the Board of Directors' directive of using dependable renewable resources to meet SMUD's renewable portfolio standards (RPS) obligations. This goal is consistent with Senate Bill 100, which was enacted in 2018. The Solano 4 Wind Project would deliver a reliable supply of up to 91 MW of electrical capacity at the point of interconnection with the grid managed by the California Independent System Operator (CAISO) and would accommodate the long-term viability of agricultural use within the Montezuma Hills. SMUD has long-anticipated the continued use of the project site for wind projects, which has been a key component of SMUD's efforts for planning to meet a carbon-free energy portfolio.

a. Need for Sustainable and Carbon-free Power Supply

The Project furthers SMUD's objective to provide a sustainable power supply as part of SMUD's IRP and a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD's exposure to price volatility associated with electricity and natural gas.

b. Generation of Electrical Energy

The Project would add an additional 91 MW of power, culminating in 306 MW of clean renewable wind energy. In 2018, SMUD set one of the most aggressive carbon reduction targets in the country with the goal of achieving net zero emissions by 2040, five years ahead of California's 2045 net zero goal. In July 2020, SMUD Board of Directors declared a climate emergency and adopted a resolution calling for SMUD to take significant and consequential actions to become carbon neutral (net zero carbon) by 2030. The Board also directed SMUD staff to report by March 31, 2021 on clear, actionable and measurable strategies and plans to reach SMUD's climate emergency goals. Rapidly



advancing clean energy technology and a collaborative and inclusive approach to carbon reduction has allowed SMUD to set the even more ambitious goal of zero carbon by 2030, with the 2030 Zero Carbon Plan being the strategy to achieve that goal. To achieve the net zero carbon by 2030 SMUD anticipates needing 300 to 500 MW of wind energy generation from various locations between 2021 and 2030. The power generated from Solano 4 Wind is critical to SMUD's goals of achieving a carbon-free energy portfolio by 2030.

c. Environmental Benefits

The project provides significant air quality benefits through the avoidance of emissions which would occur if electricity generated by the project were instead generated by a fossil fuel and will offset approximately 132,000 metric tons of carbon emissions annually that would otherwise be produced from fossil fuel facilities.

The project will produce enough electricity to power almost 40,000 homes. As discussed in the EIR, construction activities would emit NOx and PM10 at levels that could exceed YSAQMD and BAAQMD daily emissions thresholds for these pollutants. As part of its mitigation commitment, SMUD will develop a fugitive dust control plan for the project that will reduce construction-related exhaust and dust emissions as required by Mitigation Measure 3.2-1. While no further measures are available to reduce Project impacts to a less-than-significant level, these measures will protect resources to the maximum extent feasible.

d. Economic Benefits

Wind energy projects can benefit the economy through job creation, increases in personal income, and fiscal contributions. Short-term construction jobs account for the majority of direct wind-related job creation, though each project creates ongoing operations and maintenance jobs, as well as supporting jobs in the professional services such as environmental, finance, and legal services. Solano 4 construction spending is expected to contribute \$14.5 million in earnings, \$39.4 million in output, and \$22.5 million in value added to the local economy while supporting 211 jobs in the County. The operations of Solano 4 is expected to result in \$230 thousand in earnings, \$590 thousand in output, and \$440 thousand in value added to the local economy. Local annual jobs supporting operations is estimated to be 4. Additional statewide benefits include 87 construction jobs, \$7.6 million in earnings, \$21.4 million in output, and \$15 million in value added, and



annual operating and maintenance benefits of 2 jobs, \$340 thousand in earnings, \$690 thousand in output, and \$510 thousand in value added.

Finding: The SMUD Board finds the approval of the proposed Solano 4 Wind Project will result in continuing and enhanced benefits to SMUD customers in the form of carbon-free renewable wind energy.

V. Statement of Overriding Considerations

This section of the findings document addresses the requirement in CEQA Guidelines section 15093. It requires the approving agency to balance the benefits of a proposed project against its unavoidable significant impacts and to determine whether the impacts are acceptably overridden by the project benefits. As described below, unavoidable significant impact would occur in the area of Air Quality.

a. Air Quality

Under the proposed Solano 4 Wind Project, Project construction activities would emit NO_x and PM₁₀ at levels that could exceed YSAQMD and BAAQMD daily emissions thresholds for these pollutants. SMUD will implement mitigation measures designed to minimize impacts on air quality, but acknowledges that potential impacts could be significant and unavoidable. Implementation of these measures, including preparing and implementing a fugitive dust control plan to reduce construction-related exhaust and dust emissions as required by Mitigation Measure 3.2-1, seeks to reduce impacts. Nevertheless, the potential remains for implementation of the Solano 4 Wind Project to create significant and unavoidable construction emissions of criteria air pollutants and ozone precursors. Because all feasible mitigation has been included and no additional measures are available to SMUD to reduce construction activity emissions of NO_x and PM₁₀ at levels that could exceed YSAQMD and BAAQMD daily emissions thresholds for these pollutants, impacts on air quality are significant and unavoidable.

Finding: The SMUD Board finds that the project benefits identified in Section IV outweigh the unavoidable significant adverse environmental effect on air quality. The project benefits described in Section IV are hereby determined to be, independent of other



potential project benefits, a basis for overriding all significant and unavoidable environmental impacts identified in the Final EIR and in these findings.

VI. Summary

Based on the foregoing findings and the information contained in the record, it is hereby determined that:

1. Most significant impacts on the environment due to the project have been eliminated, or substantially lessened, where feasible.
2. The Project will result in a significant and unavoidable environmental effect to air quality as discussed above, and adoption of a Statement of Overriding Considerations in connection with the approval of the project is required.
3. The environmentally superior alternative would lessen the significant and unavoidable impacts of the proposed project. However, the environmentally superior alternative, as well as the other alternatives evaluated in the EIR, are rejected as infeasible because they fail to achieve project objectives.

This determination reflects the Board's independent judgment and analysis.



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**Finding of No Feasible Alternative to the Proposed Solano 4 Wind Project Pursuant to
Government Code Section 53096**

The Sacramento Municipal Utility District (SMUD) is proposing the Solano 4 Wind Project (Project) within two subareas in the Wind Resource Area (WRA) in southern Solano County (County). The Project would construct up to 19 new wind turbine generators (WTG): up to 9 in Solano 4 East and up to 10 in Solano 4 West. The Project would have a net energy production capacity of up to 91 megawatts (MW).

The County has asserted that its zoning ordinances, including the 2015 Travis Air Force Base Land Use Compatibility Plan (Travis Plan) consistency process, apply to the Project. The Project, however, is exempt from County building and zoning ordinances and regulations pursuant to Government Code section 53091, subsections (d) and (e).¹ Furthermore, even if the Project were erroneously determined to be a storage or transmission project that is not subject to the Section 53091 exemption, the Project would be exempt from County zoning ordinances pursuant to Section 53096. The exemption is triggered by a determination, by four-fifths of the Board members at a noticed public hearing, that there is no feasible alternative to the Project.

Pursuant to Section 53096, by a four-fifths vote of its members at a noticed public meeting, the Board finds that substantial evidence supports a finding, and adopts the resolution determining, that there is no feasible alternative to the Project.

The Exemption Pursuant to Government Code Section 53096

Pursuant to Section 53091, subsection (e), county zoning ordinances do not apply to the location or construction of facilities for the production or generation of electrical energy, but do apply to the location and construction of facilities for the storage and transmission of electrical energy.

Under certain circumstances, facilities related to storage or transmission of electrical energy are exempt pursuant to Section 53096. Pursuant to Section 53096, subdivision (a), the Board may render a county ordinance inapplicable to a proposed use of property that is for facilities related to storage or transmission of electrical energy. To do so, by a four-fifths vote of its members at a noticed public hearing, the Board must determine that there is no feasible alternative to the Project. Section 53096 defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors,” and at least one court has determined that a finding of no feasible alternative “must be supported by substantial evidence of the ‘economic, environmental, social, and technological factors.’”²

As explained further below, substantial evidence supports this finding that there is no feasible alternative to the Project. Accordingly, even if the Project were erroneously determined to be a

¹ All subsequent references to “Section” are to the California Government Code, unless otherwise specified.

² *City of Hesperia v. Lake Arrowhead Community Services Dist.* (2019) 37 Cal. App. 5th 734, 762, 764.

storage or transmission project that is not subject to the 53091 exemption, the Project would be a storage or transmission project subject to the Section 53096 exemption.

PROJECT BACKGROUND

The Project is located within the WRA, which was formerly known as the Montezuma Hills Wind Resource Area (MHWRA) in southern Solano County. The Project site comprises two geographically distinct areas owned by SMUD—Solano 4 East and Solano 4 West—as well as collection and generation feeder circuits connecting these areas to an existing electrical substation. The feeder circuits would run along land already subject to easements issued to SMUD. The Project includes the following components:

- Decommissioning and removing 23 existing WTGs, across the Solano 4 East site;
- Constructing up to 19 new WTGs (nine WTGs at the Solano 4 East site and 10 WTGs at the Solano 4 West site), as well as the associated electrical collection system, access roads, and minor upgrades to SMUD’s existing Russell Substation; and
- Construction of two meteorological towers, one of which will be located at the Solano West site and one at the Solano East site. The towers will be up to approximately 105 meters (345 feet) in height above ground level (AGL).

The individual WTGs would have a maximum height of approximately 492–591 feet (150–180 meters) and a maximum rotor diameter of approximately 446–492 feet (136–150 meters). Depending on the turbine technology available at the time of procurement, the meteorological tower heights are likely to vary from approximately 269–345 feet (82–105 meters).

FINDING OF NO FEASIBLE ALTERNATIVE TO THE PROJECT PURSUANT TO GOVERNMENT CODE SECTION 53096

We find that there is no feasible alternative to the Project. As part of this finding, we find that there is no feasible alternative location, technology, or wind technology for the Project.

SMUD needs new renewable and carbon-free resources to meet California’s mandate for renewable procurement (60% by 2030)³ and to meet its Board directed goals. SMUD’s Integrated Resource Plan (IRP), adopted by its Board in 2018, guides decisions on future resource developments, and lays out a pathway to achieve a Net Zero greenhouse gas (GHG) emissions goal by 2040 through investment in electrification while significantly expanding renewable and carbon-free resources in its portfolio.⁴ In July 2020, SMUD’s Board went further by declaring a climate emergency and adopting a resolution calling for SMUD to take significant and consequential actions to eliminate its greenhouse gas emissions by 2030, and directed staff to develop a plan to achieve this goal. On April 28, 2021, the Board adopted the 2030 Zero

³ Sen. Bill No. 100, approved by Governor, Sept. 10, 2018.

⁴ <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/Integrated-Resource-Plan.ashx>.

Carbon Plan (2030 Plan).⁵ The Plan, supported by the Technical Report,⁶ calls for the addition of up to 2,300 MW of new renewables and 1,100 MW of batteries by 2030 – more than double the amount we were planning for in our 2018 IRP. The 2030 Plan calls for maximizing new cost-effective utility-scale renewables within our service territory (up to 1,500 MW utility solar), but also requires SMUD to add additional resources that it does not have locally, such as wind and geothermal.

Key Project Objectives for the Project, as outlined in the Solano 4 Wind Project Draft EIR, Section 2.3, include:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity, and reduce SMUD’s exposure to price volatility associated with electricity and natural gas.
- Assist SMUD in achieving the Board’s directive of using dependable renewable resources to meet SMUD’s renewable portfolio standards (RPS) obligations. This goal is consistent with Senate Bill 100, which was enacted in 2018.
- Develop an economically feasible wind project that will deliver a reliable supply of up to 91 MW of electrical capacity at the point of interconnection with the grid managed by the California Independent System Operator (CAISO).
- Accommodate the long-term viability of agricultural use within the Montezuma Hills.

No Feasible Alternative Location for the Project

We find that there is no feasible alternative location for the Project.

The Project site includes the only property within the Solano Wind Resource Area that is either undeveloped or features a wind resource development that is nearing the end of its design life.⁷ The site encompasses two areas. Much of the western portion of the Project site, the **Solano 4 West site**, was home to a proposed wind development project by PG&E. Rather than finish developing the project, however, PG&E decided to sell the land to SMUD, along with planning assets PG&E had developed to date. In making the purchase, SMUD acquired site-specific wind development, environmental and cultural studies, and an interconnection position with the CAISO (the PG&E Birds Landing Switchyard). The remainder of the Solano 4 West Site had been intended to be repowered as part of the currently operational Solano 3 Project, but was eliminated from that project due to unresolved wind lease issues with the former project owner. The wind lease issues have since been resolved, with all 59 turbines having been removed by the prior owner, allowing the site to be developed as part of the proposed Project. In short, Solano 4 West provides SMUD with an already-owned and ready-to-develop site with an existing interconnection to the CAISO grid.

⁵ [SMUD Resolution No. 21-04-05](#)

⁶ [2030-Zero-Carbon-Plan-Technical-Report.ashx \(smud.org\)](#)

⁷ See, e.g., SMUD_WRA_Projects Map.

The eastern portion of the Project site, the **Solano 4 East site**, was the location of one of the original wind projects in the area, circa 1985. From 1998 to 2004, SMUD installed the 23 turbines operating at that site today (now known as Solano 1). These turbines have a 20-year life and most will reach end of life in 2023, though in the absence of repowering SMUD would likely continue operating the project at its current level of generation output until the late 2020s. Repowering Solano 1 at this time, however, will reduce the existing levels of interference with the Travis Air Force Base primary digital radar system⁸ while enabling a much greater energy generation profile.

SMUD recently commissioned a study of wind resource development within northern California. The Solano County WRA was the lowest energy cost for the three areas reviewed, being approximately one third less than the cost of the next lowest cost alternative (which is in the Wilbur Hot Springs Area), and that there was only “limited” potential for offshore wind resources to be available to SMUD.⁹ Developing the other sites would also require infrastructure that would take close to a decade to construct, at the earliest, making those sites infeasible from both a timing and cost perspective.¹⁰

Regarding timing, there are no feasible alternative sites for wind generation that could be developed in time to meet the established goal of being carbon neutral by 2030. Staff have concluded that none of the alternative sites could be developed to achieve that timeline, particularly including the need for substations and transmission facilities that already exist at the proposed Project site. In particular, SMUD’s experience in developing projects out of our service territory demonstrates the long lead time necessary to ensure project energy can be interconnected into the CAISO grid, a process that alone could, given the long list of competing projects, take until close to 2030.

Regarding cost, it is economically infeasible for SMUD to rebuild existing infrastructure that it can utilize at the proposed Project site. Although the western portion of the Project site is the only location in the WRA that has not had an operational wind project, the existing infrastructure purchased from PG&E included an interconnecting substation designed to handle the amount of energy generated by the proposed Project and the only transmission interconnection to the CAISO grid in the WRA. Regarding the eastern portion of the Project site, the necessary infrastructure, including lines and substation assets, already exists.

Further, since the existing Solano 1 generation would cease, at the latest, by 2030, if it were not repowered SMUD would actually suffer a net loss of generation within the WRA. SMUD certainly cannot afford to lose any generation and still meet its renewable generation goals.

⁸ Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018 at p. 2.; ALUC Hearing Transcript (May 20, 2021) at p. 47.

⁹ Final, Assessment of Carbon Neutrality Projects, Study Report, B&V Project No. 406876., 10 March 2021 (noting limited amount of offshore wind energy would likely be available to SMUD; highlighting significant accessibility challenges to developing wind in the Wilbur Hot Springs Area; finding no “significant challenges” to construction regarding wind repowering in Solano) .

¹⁰ *Id.*; see also SMUD Office Memo re: Transmission Facilities in the Lake Colusa Counties area

Attempting to recover that generation, and develop new generation, to meet its renewable generation goals on land it does not yet own is not economically feasible.

Additional discussion can be found the Draft EIR for the Project, where SMUD considered and determined Offsite Alternatives to be infeasible:¹¹

Siting the project at the current location would maximize use of existing infrastructure including electrical transmission systems with adequate capacity to accommodate additional load and land that is accessible by existing roadways. The project site represents the only available major land area that is reasonably capable of attaining the project objectives. Therefore, alternative locations for the project are not considered feasible and, thus, these alternatives are not evaluated further in this Draft EIR.

No Feasible Alternative Technology for the Project

We find that there is no feasible alternative technology for the Project. The Project is a critical part of the suite of activities SMUD is undertaking to eliminate greenhouse emissions from its portfolio of energy generation resources, and there is no feasible alternative technology for the Project that fulfills the above-mentioned Project Objectives.

Resource diversity is coveted in resource planning and is necessary for reliable operations, as it results in varying generation profiles and costs, and avoids overinvesting in one generation type that may result in diminishing returns. Wind generation, as proposed in the Project, is beneficial from a resource diversity perspective as it can provide more output than solar during peak hours and typically becomes available as solar goes offline at the end of each day. As described in the 2030 Zero Carbon Plan Technical Report,¹²:

Typically, during the summer, our Solano area wind resources produce generation that is complementary to our solar generation. As the sun is setting in July, most evenings the Delta Breeze comes through the region, increasing wind generation. As such, our Solano wind resources are especially valuable to SMUD. These resources have the potential to be fully delivered to our service territory and studies on repowering showed the new larger turbines have a complementary shape to our solar resources....

The Report goes on to recognize that even with hundreds of megawatts of additional wind resources (beyond what could be achieved through the Project alone), SMUD should look to currently unproven resources for 10% of our renewable needs by 2030.¹³

¹¹ Solano 4 Wind Project Draft EIR, section 6.2.3, at p. 6-3.

¹² 2030 Zero Carbon Plan Technical Report, “Proven Clean Technologies Strategy” (pp. 84-96).

¹³ *Id.* at 97.

Adding cost-effective renewable resources that complement the solar generation profile, are located relatively close to SMUD, and help ensure reliability will be imperative to achieving SMUD's 2030 Plan. Identifying and building enough resources in the next nine years is a challenge for SMUD. The Project is key to overcoming this challenge, because it is a known project, it is on land that SMUD has rights to develop, it is in a proven resource location, and it has existing infrastructure.

In the Draft EIR for the Project, SMUD considered other renewable energy technologies. The Draft EIR concluded that other renewable technologies, such as solar and nuclear, are not feasible alternatives to the Project because most of the Project Objectives are "focused on developing wind energy facility while minimizing environmental effects and minimizing land use conflicts" and, regarding nuclear:¹⁴

Nuclear energy is a non-fossil fuel (non GHG-producing) energy resource, and unlike solar or wind energy, production of nuclear energy does not depend on the availability of sun or wind. Nuclear energy was produced at the decommissioned Rancho Seco Nuclear Generating Station from 1975 until 1989, when it was closed by public vote. Developing a nuclear energy facility at the project site would be infeasible because use of nuclear power was already voted down once; it is a controversial technology due to public perception around safety and uncertainties over the disposition of spent fuel; it is relatively expensive to build and operate (compared to most if not all technologies); and there is overall doubt that it would ever be approved even if considered due to these factors. Diablo Canyon, the last nuclear power plant built in California, was completed in 1986, over 30 years ago, and is the last operating commercial nuclear power plant in the state; PG&E, its owner and operator, plans to close it. In short, nuclear power plants do not appear to have an immediate future in California. Finally, due to their footprint, number of employees, and operating characteristics including safety risks, they would likely result in greater impacts compared to the proposed project.

No Feasible Alternative Wind Technology for the Project

We find that there is no feasible alternative wind technology for the Project.

In developing the Project, SMUD staff surveyed the wind turbine industry manufactures to determine which turbines would be commercially available at the time of expected construction. In general, turbine size has grown significantly, and the only commercially available utility scale wind turbines are at least 100 feet tall. Although reliable wind turbines under 100 feet tall are commercially available, such turbines are designed for residential and farm use and have an available power rating of only 15 kilowatts (kW). The existing generation substation on the eastern portion of the proposed Project has an available interconnection capacity of 91MW. Utilizing this 91MW capacity would require installation of over 6,000 turbines under

¹⁴ Solano 4 Wind Project Draft EIR, section 6.2.3, at p. 6-4.

100 feet tall. Given the size of the proposed Project site, this would result in over two turbines per acre. The proposed Project impacts only 2-3% of the Project site area, and it thus meets the Project Objective of allowing the continued historic use of livestock grazing and dry crop farming on the remaining property land. Using WTGs that are under 100 feet tall would be infeasible, because this Project Objective could not be achieved.

Further, based on a Black & Veatch assessment of the Project site in 2018,¹⁵ the Draft EIR for the Project considered a Reduced Turbine Height Alternative. The Reduced Turbine Height Alternative included use of GE Energy model GE2.3-116, which has a turbine height of 138 meters and is rated at a capacity of 2.3MW. The Draft EIR concluded that this alternative was not feasible, as it:¹⁶

does not yield the full current unfulfilled need for [renewable] energy in SMUD's service area, so a reduction in scale would need to be offset by an additional project or projects. Moreover, the project objectives related to supporting California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board Strategic Directive 9, would be achieved at a lesser degree under this alternative due [to] the reduced amount of renewable energy that would be generated compared to the project.

¹⁵ Black & Veatch 2018 (January); Solano Wind Energy Project, Wind Project Expansion Assessment.

¹⁶ Solano 4 Wind Project Draft EIR, section 6.2.3, at pp. 6-7 to 6-8.

**Decision and Findings that the Solano 4 Project Is Consistent with the
State Aeronautics Act**

On April 1, 2021, the Sacramento Municipal Utility District (SMUD) submitted an application for advisory review by the Solano County Airport Land Use Commission (ALUC) of the Solano 4 Wind Project's (Project) consistency with the 2015 Travis Air Force Base (Travis AFB) Land Use Compatibility Plan (Travis Plan). On May 20, 2021, the Solano County ALUC determined that the Project was incompatible with the Travis Plan, solely on the basis that the Project's wind turbine generators (WTG) will be above 100' in height and within line-of-sight of Travis AFB's Digital Airport Surveillance Radar (DASR). Now, pursuant to the State Aeronautics Act's (Act) Section 21676, SMUD's Board of Directors is adopting these findings to overrule the Solano County ALUC's determination that the Project is incompatible with the Travis Plan.¹

Under Section 21676, a local agency may propose to overrule an airport land use commission's finding of inconsistency by a two-thirds vote of the local agency's governing body as long as it first makes specific findings that the proposed action is consistent with the purposes of the Act, as stated in Section 21670. In short, the Act requires findings that address issues of both safety and noise associated with a project in an area covered by an airport land use plan. These issues are also discussed in the Airport Land Use Handbook (Handbook), which is prepared by the California Department of Transportation, Division of Aeronautics.

State Aeronautics Act's Purposes

The purposes of the Act are to protect people from noise and safety hazards. Section 21670 states the legislative intent of the Act is to:

- promote the orderly development of each public use airport in California and the area surrounding these airports so as to promote overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.
- to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

Section 21669 states: "The standards shall be based upon the level of noise acceptable to a reasonable person residing in the vicinity of the airport." The Handbook says that "the goal of airport compatibility planning is to reduce annoyance and to minimize the number of people exposed to excessive levels of aircraft noise," and relatedly: "The sole responsibility of ALUCs is to prevent incompatible land use development and thereby both protect the public from noise and risks and preserve the utility of airports." For the concept of safety, the Handbook states that "[s]afety issues are considered for both those living and working near an airport as well as those using the airport. The issue of safety compatibility is one of evaluating 'risk,' and determining

¹ All Section references are to the Public Utilities Code unless otherwise designated.

the locations around an airport that are at the greatest risk of experiencing an aircraft accident.” (Handbook at p. xi.) Throughout, the Handbook also repeatedly refers to the Federal Aviation Administration (FAA) and its standards as those that are to be followed for airspace protection and obstruction. The Handbook also implies that if the FAA approves a project, the ALUC plan review process is warranted because of noise and other issues because the “height of the structure and its effect on airspace is only part of the puzzle.” (Handbook at p. 33.) The Act’s own height permitting process does not apply when the FAA issues a Determination of No Hazard. (Handbook at pp. 3–36.)

PROJECT BACKGROUND

The Project

The Project is located within the Wind Resource Area (WRA) formerly known as the Montezuma Hills Wind Resource Area (MHWRA) in southern Solano County. The Project site comprises two geographically distinct areas owned by SMUD—Solano 4 East and Solano 4 West—as well as collection and generation feeder circuits connecting these areas to an existing electrical substation. The feeder circuits would run along land already subject to easements issued to SMUD. The Project includes the following components:

- Decommissioning and removing 23 existing WTGs, across the Solano 4 East site;
- Constructing up to 19 new WTGs (nine WTGs at the Solano 4 East site and 10 WTGs at the Solano 4 West site), as well as the associated electrical collection system, access roads, and minor upgrades to SMUD’s existing Russell Substation; and
- Construction of two meteorological towers, one of which will be located at the Solano West site and one at the Solano East site. The towers will be approximately 105 meters (345 feet) in height above ground level (AGL).

The individual WTGs would have a maximum height of approximately 492–591 feet (150–180 meters) and a maximum rotor diameter of approximately 446–492 feet (136–150 meters). Depending on the turbine technology available at the time of procurement, the tower heights are likely to vary from approximately 269–345 feet (82–105 meters).

Over the last several years, SMUD staff had worked with the ALUC and the Travis AFB at dozens of meetings to ensure that the Project will meet standards of aeronautical safety and pose no burden beyond the current baseline level on the Travis AFB Base’s radar system. Travis AFB conducted its own review and determined the Project “should have minimal negative impact on Travis AFB operations.” The Department of Defense also reviewed the Project and determined “it will not present an adverse impact to military operations.” The FAA’s review concluded the Project “would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities.”

Solano County ALUC Process

Although SMUD has determined the ALUC’s land use consistency process does not apply to the Project, including due to statutory zoning exemptions, FAA preemption, and the lack of authority for the ALUC to review individual projects, such as the Project, under the Act. in the spirit of

inter-agency comity, SMUD submitted the application to ALUC for an advisory opinion on April 1, 2021. The Project: (1) included wind turbines and meteorological towers that would be greater in height than 200 feet above ground level (AGL); (2) located on site in Compatibility Zones D and E of the Travis Plan, and (3) did not meet the exception criteria in Section 5.6.1(b) of Travis Plan stating that no wind turbine greater than 100 feet in height AGL shall be within a line-of-sight of the Travis AFB DASR Radar Installation. Thus, the Project was deemed incompatible with strict application of the Travis Plan. However, as part of its application, SMUD requested that the ALUC determine the Project to be eligible for consistency with the Travis Plan pursuant to findings made pursuant to the site-specific exception criteria in Section 6.2.4 (c)(6) of the Travis Plan.

Under Policy 6.2.4(c)(6), upon making specific findings, the ALUC has the discretion to recognize “that there may be specific situations where a normally incompatible use can be considered compatible because of terrain, specific location, or other extraordinary factors or circumstances related to the site.” The specific findings that ALUC needed to make included that the Project will not create:

- A safety hazard to people on the ground or aircraft in flight, nor
- Result in excessive noise exposure for the proposed use, nor
- Impact airport military operations.

SMUD submitted more than 2,100 pages of documentation and a copy of SMUD consultant Westslope’s presentation to support the Project’s exemption from the strict application of Policy 6.2.4(c)(6), including volumes of documents on how the Project did not create issues for operations of Traffic AFB or create any public safety and hazard risks. The documents showed that the property underlying and in the vicinity of the Project already includes baseline interference with aerial navigation in the form of transmission towers onsite currently reaching almost 500 feet AGL, with planned increases by the tower owners at close to 600 feet. Thus, the Project site includes existing tall structures similar in height to proposed WTGs. The Solano County ALUC staff in fact acknowledged that this fact would seem to provide the basis for exceptions to the strict application of Part 77 airspace obstructions such as the height of the turbines under the FAA process. The Solano County ALUC’s own consultant, ESA, hired to help review SMUD’s Solano County ALUC application, concluded that documents submitted by SMUD “are persuasive in supporting the position that special conditions apply to the proposed development,” and the Project seems to meet the criteria under Section 6.2.4(c)(6). (Solano County ALUC Legislation Text (File #: AC 21-009), ALUC-21-03 Sacramento Municipal Utility District (SMUD) Solano 4 Wind Turbine Project, Attachment J (ESA’s Solano County ALUC SMUD Consistency Analysis Memo), at p. 5.)

However, the Solano County ALUC found the Project to be inconsistent with the Travis Plan on the basis that the Travis Plan required nothing new be built over 100-feet within the line-of-sight of the DASR Radar, while WTGs proposed for the Project are above 100-feet and will be located within line-of-sight of Travis AFB DASR. The Solano County ALUC also found that the exception criteria under Policy 6.2.4(c)(6) of Travis Plan were not met because the Project would, in their determination, degrade radar in a substantial portion of the Project and increase clutter in the already impacted Travis AFB DASR. (ALUC Resolution No. 21-04; ALUC

Hearing Transcript at pp. 56–68; 86–91; see also Solano County ALUC Legislation Text (File #: AC 21-009), ALUC-21-03 Sacramento Municipal Utility District (SMUD) Solano 4 Wind Turbine Project [hereinafter “Project’s ALUC Staff Report”], at pp. 6–10.)

Now, SMUD’s Board of Directors, pursuant to Public Utilities Code Section 21676, is making the following findings to overrule Solano County ALUC’s finding of the Project’s incompatibility with the Travis Plan.

FINDINGS

SMUD is a local agency pursuant to State Aeronautics Act.

Solano County ALUC staff already conceded that “SMUD is a regulated entity by the ALUC and is similarly situated as any city or the County” under the Act. (Solano County ALUC Agenda Submittal for ALUC-17-10: SMUD Plan Amendment Request [File No. AC 17-035], October 12, 2017; see also *Suisun Alliance v. Suisun City* (2010) Solano Co. Sup. Ct. Case No. A125042, 2010 WL 3280273, at 4-5.) The Legislature clarified its intent that a local agency such as a special district has the ability to overrule the ALUC determination, as long as the local agency follows the proper procedure set forth in the SAA. (See Assembly Bill Analysis for AB 332 [May 2003], at p. 3.)

Devotion to Incompatible Use

We find the Project is consistent with the Act’s purpose of minimizing the public’s exposure to “safety hazards within areas around public airports *to the extent that these areas are not already devoted to incompatible uses*” (Section 21676, emphasis added). As explained further in the findings below, we find that the entire Project is consistent with the Act’s purposes, as stated in Section 21670, of “minimizing the public’s exposure to excessive noise and safety hazards.” As part of this finding, we necessarily find that the Project is consistent with those purposes in the areas identified by Section 21670: namely, those “areas [that] are not already devoted to incompatible uses.”

The Solano County ALUC resolved that the “Project does not meet the requirements for an exception under Section 6.2.4 (c)(6), Other Special Conditions, due to impacts, such as further radar degradation within a substantial portion of the project, and an increase in radar clutter on the already impacted Travis AFB DASR radar, for which an infill radar mitigation project is ongoing with no current resolution.” (ALUC Reso. No. 21-04 at 2.) This statement is vague and, to the extent Solano County ALUC implies that existing wind turbines in the area have adversely impacted radar systems’ ability to enable safe operation of air bases, it is incorrect. Travis AFB, and other air bases, have been successfully operating in the vicinity of wind turbines for decades; and the FAA, DoD, and Travis AFB studies for the Project do not support such a conclusion by Solano County ALUC. Further, even if we assume that existing wind turbines and other structures are incompatible uses under the Travis Plan, as discussed below, the

Project would be located in an area “already devoted to incompatible uses” under Section 21670 and would thus be consistent with the purposes of the Act.

The sole reason that ALUC found the Project incompatible is because the new turbines would be greater than 100 feet and located within line-of-sight of Travis AFB DASR. (ALUC Hearing Transcript, at pp. 8–12, 40–41, 53, 56–68.) But the Project is entirely in an area that is already devoted to wind turbine operations, the WRA (formerly known as MHWRA) in southern Solano County. The WRA is the site of eight currently operational wind projects with turbines of maximum heights ranging from 340' to 428' and majority of these are already located within the Travis AFB DASR's line-of-sight. (SMUD's Solano County Airport Land Use Commission Application, p. 5; Solano Wind Project Environmental Impact Report Chapter 2, p. 3.9-2.) In particular, “Solano County (County) has identified the Collinsville–Montezuma Hills south of State Route (SR) 12 as the primary wind resource area in the county. Wind energy development has been deemed inappropriate in certain areas of the county, to protect public health and safety and natural resources.” (*Id.*) Further, SMUD's application materials to the Solano County ALUC showed that the Project site has transmission towers onsite currently reaching almost 500 feet in height, with planned increases by the tower owners to close to 600 feet that are within Travis AFB DASR's line-of-sight. (SMUD Office Memo, “Impediments to Aerial Navigation on Solano 4 Wind Project Site,” April 2, 2021.) Given that there are existing wind turbines and other transmission structures within Travis AFB DASR's line-of-sight of heights similar to the proposed WTGs for the Project, then Section 21676's “already devoted to incompatible uses” standard has been met.

Noise

We find the Project is consistent with the Act's purpose of minimizing the public's exposure to excessive noise. This is because the Project will not cause anyone to be exposed to airport noise. No one during the development of the Project has suggested otherwise. The Project includes no residences and has no practical way of exposing members of the public to airport noise. The Project property is, at its closest, twelve miles away from Travis Air Force Base (Travis AFB) (ALUC Hearing Transcript at p. 15), alleged impacts on which were the sole reason for the Solano County ALUC's purported determination of inconsistency. (ALUC Resolution No. 21-04.) The Solano County ALUC staff principal planner summarized this issue succinctly, but accurately, when he said: “You must determine that there's not a noise issue, and I think the turbines are okay with the sounds of jets flying over.” (ALUC Hearing Transcript at p. 9.)

Safety for People on the Ground and Aircraft in Flight

We find the Project is consistent with the Act's purpose of minimizing the safety risks for people on the ground and aircraft in flight. In the Determinations of No Hazard to Air Navigation DNH) the FAA issued for the Project turbines, the FAA determined there would not be a hazard to air navigation on the condition SMUD met certain standard requirements, including marking and lighting the WTGs in accordance with FAA Advisory Circular (AC) 70/7460-1 L Change 2, *Obstruction Marking and Lighting*. (FAA, Determination of No Hazard to Air Navigation,

Aeronautical Study No. 2018-WTW-13388-OE.) Further, even Solano County ALUC staff concluded that “the SMUD turbines do not represent a significant physical obstruction hazard due to the presence of other taller objects on lands adjacent to SMUD’s site.” (Project’s ALUC Staff Report, Attachment J (ESA’s Solano County ALUC SMUD Consistency Analysis Memo), at p. 8.) Further, as the Project site is located mainly within Compatibility Zones D and E for the Travis Plan, there are no noise and safety criteria applicable to people or buildings on the ground, other than the requirement for a deed notice regarding aircraft operational impacts applicable in Compatibility Zone D. (See Travis Plan, Section 4.6.2; see also Project’s ALUC Staff Report, Attachment J (ESA’s Solano County ALUC SMUD Consistency Analysis Memo), at p. 4.)

Safety for Military Airport Operations

We find that the Project is consistent with the Act’s purpose of protecting people from safety hazards as it relates to radar. The primary radar systems at issue in this finding are operated by Travis AFB.² Travis AFB has two radar systems, the primary Digital Airport Surveillance Radar (DASR) and the Monopulse Secondary Surveillance Radar (MSSR). These systems are co-located and operate together. Both radar systems are installed on the same tower. The DASR looks for moving targets and the MSSR looks for aircraft with active transponders. The tracking and display system (Standard Terminal Automation Replacement System or STARS) integrates these inputs for the controller who will see the return from the DASR and code and altitude of the aircraft from the MSSR. (ALUC Hearing Transcript at pp. 24, 26, 71; March 11, 2021; Westslope Consulting Letter to [SMUD Environmental Services Supervisor] Ammon Rice: “Response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC letter dated August 6, 2019” March 30, 2021.)

As explained in more detail below, the Project will not increase, and instead may slightly reduce impacts to the DASR from the currently operational wind projects in the WRA, and the MSSR radar system is practically unaffected by wind turbines. The Project was designed specifically to ensure there would be no degradation of the DASR, and studies by Westslope Consulting demonstrate that these design efforts were successful. Mr. Geoff Blackman of Westslope Consulting has an extraordinary level of experience in this area and even worked for years on setting up Travis AFB’s own radar system. (Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018; Blackman Resume; ALUC Hearing Transcript at pp. 21, 24–25.) The FAA, Department of Defense Clearinghouse and Travis AFB also studied the Project impact. The FAA noted in their DNHs: “The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4,

² The Project will also be visible to the radar systems for McClellan. However, the FAA reviewed the impacts to aerial navigation broadly and determined the Project turbines will cause “no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities.” (FAA, Determination of No Hazard to Air Navigation, Aeronautical Study No. 2018-WTW-13388-OE.) Accordingly, the SMUD Board’s finding that the Project meets the Act’s purposes extends to all airport radar systems for which the Project features are visible.

and the McClellan (MCC) ASR-9 facilities. However, this would not cause an unacceptable adverse impact on ATC.”

Results of Westslope Studies for Radar Operations

The Project includes replacement of existing Solano Phase 1 turbines in Solano East portion of the Project and installation of turbines on the Solano West portion of the Project.

Solano East Results: Westslope conducted a basic line-of-sight analysis of the effect the Project’s replacement of the existing Solano Phase 1 turbines with a smaller number of taller turbines would have on the radar systems of seven surrounding airports. The study concluded that for three of the airports in the region, there would be no impact, for two there would be no material difference, and for the remaining two—Travis AFB and Stockton—there would be “a decrease to the existing radar effects.” (Westslope Consulting, LLC; “Solano Phase 1 Repower Wind Project Basic Radar Line-Of-Sight Study,” April 16, 2018.) Westslope modeling demonstrated the decreased impact to probability of detection from Solano West would be 0.2 to 0.3% below the current baseline. (Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018 at p. 2.)

Solano West Results: Westslope conducted a similar analysis for the same seven airports to determine the effect of installing turbines on the remainder of the Project property, the Solano West portion of the greater Project (i.e., all areas outside of the existing Solano Phase 1 project). (Westslope Consulting, LLC; “Solano Phase 4 Wind Project Basic Radar Line-Of-Sight Study,” April 18, 2018.) The study concluded that the Solano West portion of the Project would have no impact on three airports, no material difference on another two, and for the remaining two—Travis AFB and McClellan—the study determined that the turbines would be visible to the radar and that “[a]dditional radar effects will include a partial loss of primary radar target detection and a number of primary radar false targets over and in the immediate vicinity of the Project due to clutter. Other possible radar effects due to clutter include a partial loss of weather detection and false weather indications over and in the immediate vicinity of the Project.” Westslope modeling demonstrated the increased impact to probability of detection from Solano West would be 0.2% above the current baseline. (Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018 at p. 2.) This is equal to or less than the reduction impact provided by the repowering of Solano East as described above.

Combined Effect of Solano East and Solano West: In designing the Project, SMUD staff and consultants sought to eliminate any net increase in radar interference from the Project as a whole. As Westslope confirmed through extensive modeling and careful consideration of the specific number and locations of the wind turbines “that there will be *no material difference* on the performance of the DASR....” (Westslope Consulting, Letter to [SMUD New Project Development Manager] Buck Cutting: “Solano 4 Replacement Wind Turbines & Sacramento Municipal Utility District (SMUD),” March 11, 2021; Westslope Consulting Letter to [SMUD Environmental Services Supervisor] Ammon Rice: “Response to Dr. Jerry Johnson, Director of

Engineering Regulus Group, LLC letter dated August 6, 2019” March 30, 2021; Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018; ALUC Hearing Transcript at p. 46.) As Mr. Blackman explained at the ALUC hearing, the Project was designed to negate any existing impacts from Solano 4 West. (ALUC Hearing Transcript at p. 39.) Indeed, as designed, the repowering project will result in a no change or a 0.1% reduction in DASR radar interference from baseline operations, with no change in effect on the MSSR. (Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018 at p. 2.; ALUC Hearing Transcript at pp. 47.)

Overall Project Impacts on Radar Operations

Westslope Consulting, Letter to Ammon Rice: “Response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC, dated August 6, 2019,” provides a summary of why in spite of effects on DASR, the overall radar effects are minimal and do not raise concerns for radar, with respect to radar functioning:

Utility scale wind turbines within line-of-sight of a primary surveillance radar, such as the Travis AFB DASR, can have an adverse effect on radar performance. In fact, Travis AFB has served and continues to serve as an excellent source of information for the United States government and the wind industry in understanding the effects that multiple wind projects can have on a DASR and the display system used by the air traffic controllers, the Standard Terminal Automation System (STARS), at the Travis AFB Radar Approach Control (RAPCON) facility. Travis AFB and the wind projects in the Collinsville-Montezuma Hills WRA area also served as an excellent source of information in determining how to manage or lessen the effects of wind turbines for a DASR and STARS air traffic control systems configuration. Part of this work was conducted under Cooperative Research and Development Agreement (CRADA) No. 10-002 in collaboration with Travis AFB, Westslope Consulting, LLC (Westslope), and three wind project developers including the Sacramento Municipal Utility District (SMUD).^{3, 4} Monopulse Secondary Surveillance Radar (MSSR), which is the secondary surveillance radar co-located with the DASR and is the main radar used for air traffic control by the base, was shown to not be effected [sic] by wind turbines. The MSSR interrogates transponder equipment on board the vast majority of aircraft operating in and around the Travis AFB RAPCON’s airspace. It should also be noted that while there can be adverse effects on the DASR, the MSSR, which is the secondary surveillance radar co-located with the DASR and is the main radar used for air traffic control by the base, was shown to not be effected

³ Air Mobility Command article at Cooperative agreement forges solution for wind turbine projects at Travis AFB > Air Mobility Command > Article Display.

⁴ United States Transportation Command Cooperative Research and Development Agreement, “Assessment of Wind Farm Construction on Radar Performance” Operations Working Group Research Conclusions and Recommendations Interim Report to Joint Technical Working Group dated January 20, 2010. Available at blobdload.aspx (solanocounty.com).

[sic] by wind turbines. The MSSR interrogates transponder equipment on board the vast majority of aircraft operating in and around the Travis AFB RAPCON's airspace.

Secondary surveillance radar, such as the MSSR, are less susceptible to interference from wind turbines than primary surveillance radar. Unlike primary surveillance radar that depends on reflected energy to discern aircraft, secondary surveillance radar relies on, in general terms, two-way communication with aircraft via operating transponders. This process is cooperative whereby the secondary surveillance radar transmits a set of pulses at one frequency to interrogate transponders, then receives and processes replies from operating transponders at another frequency. Because of the use of different transmit and receive frequencies, secondary surveillance radar is not as susceptible to the effects of clutter that interfere with the performance of primary surveillance radar. Clutter is unwanted radar returns from the ground, rain or other precipitation, buildings, antenna towers, transmission lines, wind turbines, vehicular traffic, and birds. Some publicly available United States government research has considered the effects of wind turbines on secondary surveillance radar. A Department of Homeland Security (DHS) funded study conducted by JASON found that “[s]econdary (i.e., transponder, or “beacon”) tracks were rarely affected” by wind farms.⁵ JASON is a group of the nation's top scientists that advise the United States government. In addition, the Department of Energy, Department of Defense (DoD), DHS, and the Federal Aviation Administration (FAA) sponsored flight trials conducted by Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL) and Sandia National Laboratories as part of an Interagency Field Test and Evaluation (IFT&E) program noted that “primary surveillance radars are severely impacted by wind turbines while the beacon transponder-based secondary surveillance radars was not affected by wind turbines.”⁶

When evaluating the effects of wind turbines on radar, it is important to distinguish between effects and operational impacts. Effects do not always translate into operational impacts (i.e., a substantial adverse effect). As a result of early consultation with Travis AFB and Solano County's Windfarm Re-Power Group dating back to April 21, 2016, SMUD and Westslope undertook a substantial effort to identify a wind project configuration—considering different wind turbine layouts, numbers of wind turbines, and wind turbine models—for Solano 4 to ensure there would be no additional effects as a result of the project on the DASR and on the air traffic controllers' displays in STARS. In the spirit of collaboration,

⁵ JASON, MITRE Corporation, “Wind Farms and Radar,” January 2008, p. 7. Available at Wind Farms and Radar (fas.org).

⁶ Sandia National Laboratories, MIT Lincoln Laboratory, “IFT&E Industry Report, Wind Turbine-Radar Interference Test Summary,” September 2014, p. 32. Available at SANDIA REPORT; SF 1075-SUR (energy.gov).

the results of multiple radar cumulative impact studies were presented to Travis AFB prior to filing the Solano 4 wind turbines with the FAA.⁷

Westslope's studies indicate that removing and replacing 23 existing wind turbines with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter modern wind turbines will have no material difference to the DASR or on the air traffic controllers' displays in STARS.

The Solano 4 wind turbines are located outside of Travis AFB circling approach areas and will have no effect on the base's published visual flight rules (VFR) operations or on instrument flight rules (IFR) operations.⁸ Solano 4 will result in fewer overall wind turbines as Solano 4 will replace 23 existing Vestas V47 wind turbines, which currently interfere with the Travis AFB DASR, with up to 22 136-meter rotor diameter or up to 19 150-meter rotor diameter wind turbines. Because construction of Solano 4 will result in fewer overall wind turbines and the proposed wind turbines will have no effect on the base's published VFR or IFR operations, Solano 4 will have no material difference on the performance of DASR and STARS configurations compared to current conditions and will not impact current RAPCON air traffic operations. Further, the secondary surveillance radar co-located with DASR, which is the main radar used for air traffic control, will not be affected.

(See also Westslope Consulting, "SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6," September 2018 at p. 2.; ALUC Hearing Transcript at pp. 71–72.) To summarize, Mr. Blackman testified that the other interested agencies, FAA and Travis AFB "came to the same conclusion . . . , that this would not result in any additional effect on the Travis radar, and, therefore, would not result in any additional change to the way Travis conducts their operations. Simply put, . . . will Travis be able to do what they can today, tomorrow? And the answer is yes." (ALUC Hearing Transcript pp. 70–71.)

Federal Aviation Administration Analysis

In response to applications filed by SMUD staff, the FAA on February 2, 2019 issued a Determination of No Hazard (DNH) to Air Navigation for each of the nineteen (19) proposed Project turbines and included conditions related only to marking and lighting. A DNH is the FAA's determination that the Project can be installed and operated without safety impacts.

Before issuing the DNHs the FAA conducted an aeronautical study concerning each individual turbine proposed as part of the Project. For each turbine, the FAA concluded that "the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities."

⁷ See SMUD Solano 4, Cumulative Impact Study and Mitigation Solution Results for Vestas V136 and V150 Wind Turbine Layouts dated September 6, 2018.

⁸ In accordance with FAA Order 8260.3D and FAA Order 8260.58A.

The below excerpts are from the Solano 4 Wind Project (Solano 4) DNHs issued by the FAA originally on February 1, 2019 (emphasis added).

Simply being “seen” by the radar is not the real issue though. How that target (in this case, the wind turbine) is processed and displayed for ATC is the key. The users of the system (ATC) is the sole decider on whether the system is acceptable to be able to perform their duties. *Although there may be other entities using these radar systems, the responsibility and authority of the FAA is the safe and efficient use of the navigable airspace, including the impact of the radar effects on air navigation.*

The turbines would be within the line of sight of the Stockton, CA. (SCK) ASR-11, the Travis (SUU) DASR, the Mill Valley (QMV) ARSR-4, and the McClellan (MCC) ASR-9 facilities. The proposals will affect the quality and/or availability of radar signals. The effects would be unwanted primary returns (clutter) and primary target drops, all in the area of the turbines. Tracked primary targets could diverge from the aircraft path and follow wind turbines, when the aircraft is over or near the turbines.”

However, this would not cause an unacceptable adverse impact on ATC operations at this time.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. *Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport. Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.*

In the DNHs, FAA was careful to acknowledge that although wind turbines do affect aerial navigation systems and procedures, such as the quality and availability of radar signals, the impacts from this Project do not constitute substantial adverse effects. The FAA also recognized that the exceedance of an obstruction standard does not necessarily mean the Project would constitute a hazard. Rather, “[i]t is the result of the aeronautical study that determines whether the structure would be a hazard or no hazard to air navigation. We will always compare proposed structures against all of the obstruction standards but will not circularize the standards that are not exceeded nor any standards and/or effects that are beyond the scope of the public to provide information about.”

The FAA extended the DNHs on January 28, 2021 after receiving feedback from the DoD Clearinghouse as described below.

Travis AFB Studies

In addition to the above steps and evaluations, Travis AFB prepared and concluded its own study, including the formation of a Mitigation Response Team (MRT) with Travis AFB as required by the DoD Military Aviation and Installation Assurance Siting Clearinghouse (the “DoD Siting Clearinghouse”) mission compatibility evaluation process as documented in Part 211 of Title 32 of the Code of Federal Regulations (Military Aviation and Installation Assurance Siting Clearinghouse, accessed 2021).

The MRT review culminated in a finding by the 60th Air Mobility Wing that, although the Project’s proposed replacement of 82 aging wind turbines with 19 newer turbines will not improve [their] Digital Airport Surveillance Radar’s probability of detection capability within the Wind Resource Area, the Project “should have *minimal negative impact on Travis AFB operations.*” (U.S. Colonel Corey Simmons, Air Force Memorandum for SAF/IEI, AMC A3A, 11 January 2021 (emphasis added).)

Accordingly, the DoD Siting Clearinghouse determined that the Project “will not present an adverse impact to military operations.” (Office of the Assistant Secretary of Defense, Letter from Sample to Beck: “Federal Aviation Administration (FAA) Study Number: 2018-WTW-13388-OE and 18 associated structures.”). SMUD then received extensions for the 19 DNHs for the Project on January 28, 2021, as requested.

Specific Findings on Safety for Military Airport Operations

Safety. Radar False Targets. As discussed above, we find that the Project will result in minimal impacts on the number of false targets on radar screens at Travis AFB. As Westslope Consulting explained:

While false primary targets are possible, replacing the 23 existing wind turbines with up to 22, 136- meter rotor diameter or up to 19, 150-meter rotor diameter modern wind turbines will have no material difference in the number of false primary targets reported by the DASR or in the number of the false primary tracks on the air traffic controllers’ displays in STARS. After construction, system optimization, including updating the range-azimuth gate map in the DASR, will address the difference in the location and number of wind turbines. In other words, the conditions under the Solano 4 Wind Project would not be any different than the current condition.

(Westslope Consulting, Letter to Ammon Rice: “Response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC letter dated August 6, 2019,” March 30, 2021; see also Westslope Consulting, “SMUD Solano 4 Cumulative Impact Study and Mitigation Solution Results for 2018 Vestas V136 and V150 Wind Turbine Layouts 6,” September 2018 (“False targets not expected to be significant and should be manageable”).)

Safety. Radar Screen Clutter. We find that the Project will not increase existing levels of so-called clutter on radar screens, as described above. Although WTGs do cause clutter on radar, the Project removes 23 turbines and replaces them with up to 19 larger turbines in a wind resource

area with 528 currently installed turbines in the line of sight of the Travis AFB primary radar. Thus, this Project is not expected to have any increase in radar clutter. (See, e.g., ALUC Hearing Transcript p. 47–48; see also *id.* at pp. 24–25.)

Safety. Air Traffic Controller Workload. We find that the Project will not adversely affect safety through any indirect increase in the workload of individual traffic controllers. This is due to the efforts of SMUD and its consultants to avoid radar interference impacts through design, number, and location of wind turbines. (ALUC Hearing Transcript at p. 48 (“there will be zero difference to the operators”), 77–78.)

Safety. Radar and the 80 Percent Standard. We find that the Project will not result in any new or increased safety issue resulting from degradation of the so-called 80 percent standard. The 80 percent standard is a design standard so the procuring entity can ensure its radar systems are capable of recognizing small aircraft at least 80% of the time under good (or blue sky) conditions. First, the Project will not have an additional effect on Travis AFB’s radar. As described above, the record shows that the Project will not degrade the Travis AFB DASR’s functionality. Second, the Project will also not affect the secondary radar system (the MSSR radar system), which is not affected by existing wind turbines. As long as aircraft have their transponders on, the MSSR will see them, and FAA conducts outreach to ensure the transponders are kept on. (ALUC Hearing Transcript pp. 71–72.) Consequently, the 80 percent standard will not be degraded by the Project.

Safety. Airspace Obstruction. We find that the Project will not cause a substantial adverse impact to airspace navigation or obstruction. SMUD consultant Capital Airspace prepared an analysis of these issues for the Project, using the same analytical approach the FAA uses. In short, it reviewed all areas of potential effect on flight impacts, from radar to navigation to flight paths. (Capitol Airspace Group, LLC, Solano Phase 1 & Phase 4: Obstruction Evaluation & Airspace Analysis, June 25 2018; ALUC Hearing Transcript at pp. 69–70.)

First, we find specifically that the Project will not degrade aeronautical safety for airplanes in flight. The Project wind turbines are located outside of Travis AFB circling approach areas and will have no effect on the base’s published visual flight rules (VFR) operations or on instrument flight rules (IFR) operations. (Capitol Airspace Group, LLC, Solano Phase 1 & Phase 4: Obstruction Evaluation & Airspace Analysis, June 25 2018; ALUC Hearing Transcript at pp. 69–70.) The FAA recognized that, although the Project turbines would be within the line of sight of the Travis AFB radar facilities, its study “for possible Visual Flight Rules (VFR) effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations.” The FAA thus concluded that, while the Project turbines “would extend upwards into altitudes commonly used for en route VFR flight,” there is no information that the turbines would be “located along a regularly used VFR route or that they would pose a problem for pilots operating en route” or otherwise result in unacceptable adverse impact on ATC operations. (Federal Aviation Administration, Determination of No Hazard to Air Navigation [Aeronautical Study No. 2018-WTW-13388-OE], 2/1/2019.)

The FAA is going to accommodate the presence of the turbines by increasing the minimum vectoring altitude (MVA) by 100' in one sector of the Northern California TRACON, from 1,700' to 1,800'. This was not deemed by FAA to be a significant change, and is a common adjustment for the FAA to make. (Westslope Consulting, Solano Phase 1 and 4: Obstruction Evaluation & Airspace Analysis July 25, 2018; ALUC Hearing Transcript pp. 70–72.) In FAA's words: "The study disclosed that increasing the MVA in the area of the turbines would not impact a significant number of operations. The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures." In conclusion the FAA stated: "Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met." (Federal Aviation Administration, Determination of No Hazard to Air Navigation [Aeronautical Study No. 2018-WTW-13388-OE], 2/1/2019.) "This increase ensures the appropriate obstacle clearance and, as a result, maintains safety." (Westslope Consulting Letter to Ammon Rice: "Response to Dr. Jerry Johnson, Director of Engineering Regulus Group, LLC letter dated August 6, 2019" March 30, 2021.)

Second, we find there are no safety impacts as a result of intrusion into visual flight rules traffic pattern airspace. This airspace, used by pilots operating during visual meteorological conditions, does not overlie the Project area. Under certain conditions, pilots do fly *under* this airspace, but that data is not publicly available due to security concerns, and Travis AFB, the DoD, and the FAA did not raise intrusion into this airspace as a concern. In addition, no military airspace and training routes overlie the Project area. (Westslope Consulting, Solano Phase 1 and 4: Obstruction Evaluation & Airspace Analysis July 25, 2018.)

Safety. Cumulative Effects. We find there will be no significant cumulative effects on safety, whether from collisions or aerial navigation. This conclusion is based, in part, on the fact that the Project was designed to have no net decrease in performance of the Travis AFB radar system. Consistent with this conclusion, the FAA itself found that "[t]he cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant." (FAA, Determination of No Hazard to Air Navigation, Aeronautical Study No. 2018-WTW-13388-OE.) Specifically, the FAA did not find any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, and the proposed wind turbines (as sited and configured) are not expected to affect the capacity of any existing or planned public-use or military airport. (*Id.*)

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July 29, 2021

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Via electronic and first class mail

Re: Solano County Airport Land Use Commission's response to SMUD's proposed overrule findings on the Solano 4 Wind Project

President Bui-Thompson and the Sacramento Municipal Utility District Board,

This letter provides comments from the Solano County Airport Land Use Commission (ALUC) relating to the Sacramento Municipal Utility District's (SMUD) proposed decision and findings that the Solano 4 Wind Project (proposed project) is consistent with the State Aeronautics Act and SMUD's intention to overrule the ALUC's determination that the proposed project is inconsistent with the Travis Air Force Base Land Use Compatibility Plan (TALUCP). As discussed in detail below, in this letter, we conclude that the proposed project is subject to the jurisdiction of ALUC and that SMUD's proposed decision and findings are not legally adequate to support SMUD's proposed overrule of the ALUC's determination that the proposed project is inconsistent with the TALUCP in compliance with the requirements of California Public Utilities Code section 21676.

Background

Travis Air Force Base (Travis AFB) is a crucial resource for Solano County and the entire region, as it is one of the area's largest employers, and a source of economic viability and service to the community and to the nation's defense. One of the services provide by Travis AFB is radar surveillance of not just military aircraft but also civilian aircraft traveling through the area. Nationwide, interference with flight patterns and radar have been a known byproduct of wind turbine facilities. As SMUD points out, what is now called the Solano Wind Resource Area (WRA) is burdened with multiple wind turbine projects, including SMUD's existing Solano 3 Wind Project. On or about the time that SMUD was seeking to commence construction on its Solano 3 Wind Project, two other wind turbine projects were also coming forward for review by the ALUC. The military had concerns with the projects, due to the cumulative degradation of the radar at Travis AFB in particular. These concerns led to the formation of the Cooperative Research and Development Agreement (CRADA) among the wind energy developers including SMUD, and the Department of Defense, with the Air Force, various technical experts, and the ALUC as participants in workshops.

The CRADA's studies determined that the anticipated impact of the three proposed projects were approximately just under the limit that could be tolerated in the WRA before the area would become unsafe to the public. For this reason, the ALUC determined that the criteria for development under the TALUCP needed a definitive radar standard. The only standard that was proven effective to ensure radar degradation would not occur beyond the threshold of safety identified by the CRADA is the line of sight standard. Therefore, line of sight was adopted as the standard for proposed wind turbine facilities. (See TALUCP, section 5.6.1, p. 37.)

On April 1, 2021, SMUD submitted an application to ALUC for a consistency determination of the proposed project with the TALUCP. The proposed project would involve decommissioning existing wind turbine generators (WTGs) and constructing, operating, and maintaining new, more technologically advanced, WTGs. The proposed project would also involve the construction of two meteorological towers and minor upgrades to SMUD's existing Russell Substation. The proposed project is located within the WRA in southern Solano County, in compatibility zones D and E. The proposed WTGs would be greater in height than 200 feet above ground level (AGL)¹.

On May 20, 2021, the ALUC determined that the proposed project was incompatible with the TALUCP, as follows:

(1) the proposed project is not consistent with the TALUCP, notably the Section 5.6.1 compatibility factors set for wind turbines, in that the proposed turbines are within the line of sight of Travis AFB Digital Airport Surveillance Radar (DASR); and (2) the proposed project does not meet the exception criteria in Section 6.2.4(c)(g), (Other Special Conditions) due to radar impacts that will result in further radar degradation within a substantial portion of the project, such as an increase in radar clutter on the already impacted Travis AFB DASR radar, for which an infill radar mitigation project is ongoing with no current resolution.

On July 2, 2021, SMUD provided the ALUC with its proposed decision and findings to support its proposed overrule of the ALUC's inconsistency finding. SMUD's decision and findings conclude that the proposed project is consistent with the State Aeronautics Act. As discussed in detail below, the proposed project falls within the jurisdiction of the ALUC and the proposed decision and findings to overrule the ALUC's inconsistency finding for the proposed project are inadequate and do not comply with state law.

ALUC Jurisdiction

SMUD asserts in its draft Resolution and findings that the proposed project is not subject to the jurisdiction of the ALUC "... for numerous reasons, including due to the public power generation zoning exemption in Government Code Section 53091; federal preemption pursuant to the authorities empowering review by the Federal Aviation Administration (FAA); and the State Aeronautics Act does not grant the ALUC the power to review individual projects." SMUD Draft Resolution, pgs. 1-2.

These assertions have no legal merit. The proposed project comes squarely within the ALUC's jurisdiction. Pursuant to Public Utilities Code section 21670 subdivision (f), the Legislature clarified, that special districts such as SMUD are subject to the provisions of the Act. In doing so, the Legislature recognized that special district projects that are not otherwise land use plans or ordinances, but come within certain height, use, and safety restrictions must be reviewed by the local ALUC. (See California Bill Analysis, S.B. 1350 Sen., 8/21/2000; Pub. Utilities Code, §

¹ The proposed WTGs will all be over 400 feet in height, with some just under 600 feet.

21674.7, subd. (b).) Moreover, SMUD’s assertion that it is somehow exempt from ALUC jurisdiction directly contradicts these provisions in the State Aeronautics Act. The ALUC is an independent government agency established and empowered by the Legislature to implement and enforce the provisions of the State Aeronautics Act, with specific powers and duties. (Pub. Utilities Code, §§ 21670, 21674.) The fact that the ALUC is staffed by the County does not change the jurisdiction of the ALUC. Caltrans Division of Aeronautics (Aeronautics) agrees with the ALUC’s interpretation that SMUD falls within the jurisdiction of the ALUC and that the project “must be referred to the ALUC for a consistency determination with [the ALUC’s] ALUCP.” (See Division of Aeronautics letter to Ammon Rice, dated September 3, 2019.)

SMUD’s assertions that the ALUC lacks jurisdiction based on federal preemption pursuant to the authorities empowering review by FAA are also without legal merit. Although the TALUCP relies on FAA regulations, including Federal Aviation Regulations, Part 77, these regulations are primarily used for establishing airspace protection and are only the starting point for establishing safety zones. Because Part 77 surfaces were established for purposes of airspace protection, not safety compatibility, compliance with the Part 77 surfaces do not avoid the requirement for SMUD to comply with the noise and safety provisions of the TALUCP.²

Legal analysis of Proposed Decision and Findings

Various sections of the ALUC statutes provide local agencies with the ability to overrule ALUC decisions on land use matters under certain specific circumstances. (See, e.g., Pub. Utilities Code, §§ 21676, 21676.5 and 21677.) The overrule process generally involves four mandatory steps: (1) at least forty-five (45) days prior to any decision to overrule the ALUC, the local agency must provide the ALUC and Division of Aeronautics with a copy of the proposed decision and findings; (2) the holding of a public hearing; (3) the making of specific findings that the action proposed is consistent with the State Aeronautics Act; and (4) approval of the proposed action by a two-thirds vote of the agency’s governing body. One particular aspect of this overruling process warrants detailed discussion here: specifically, the issue of what constitutes valid findings under the provisions of the law.

The requirement for a local agency to make specific findings in conjunction with a decision to overrule an ALUC is included in at least six separate sections of the ALUC statutes. In each case, the law provides that the findings must show that the proposed local agency action “is consistent with the purposes of this article stated in Section 21670.” A local agency cannot simply overrule an ALUC decision without first documenting the basis for the overruling action and relating that basis directly to the purposes for which the ALUC statutes were adopted. The purpose of findings is to assure compliance with state law.

The essential substance of the findings which accompany a local agency overruling of an ALUC decision is indicated in ALUC statutes. The findings must demonstrate that the proposed action “is consistent with the purposes ...” of the statutes as set forth in section 21670. Five separate purposes for the legislation are stated, as follows:

- (i) To provide for the orderly development of each public use airport in this state.
- (ii) To provide for the orderly development of the area surrounding these airports to promote the overall goals and objectives of the California noise standards.

² In fact, each Determination of No Hazard, as well as each extension, contains the following notation: “this extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and *does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.*” (Emphasis added.)

- (iii) To provide for the orderly development of the area surrounding these airports to prevent the creation of new noise and safety problems.
- (iv) To protect the public health, safety, and welfare by ensuring the orderly expansion of airports.
- (v) To protect the public health, safety, and welfare by the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

Although findings do not need to address each of these purposes point by point, it is essential that, collectively all the purposes be addressed. The necessity for adequate findings to accompany a local agency's overruling of an ALUC was affirmed in *California v. City of Ceres* (1992) 9 Cal.App.4th 1384. In this case, the court found that the city council had merely referred to the ALUC statutes and then concluded that the proposed land uses minimized public exposure to excessive noise and safety hazards in the airport area. The findings did not document the critical links between the facts surrounding the proposal, the relevant policies, and the decision. Similarly, here, and as discussed below, the proposed decision and findings do *not* meet the requirements of specific findings of fact supported by substantial evidence consistent with the requirements of state law.

Providing for Orderly Development of the Airport

SMUD's findings do not document how the agency has considered any adopted long-range development plans that may exist for Travis AFB, how SMUD plans to support development of Travis AFB over at least the next 20 years, and how local land use planning and zoning actions would serve to protect the approaches to the airport runways at Travis AFB. Specifically, SMUD's analysis fails to focus on the relationship between the proposed project and the current and future operations at Travis AFB. One effect that is anticipated with the proposed project is an increase in the minimum vector altitude, which is dismissed as not being "significant" and that the FAA reports it is common to work around this type of change. However, there is no acknowledgement of the fact that Travis AFB has already lost an approach to development in the WRA, nor a discussion regarding Travis AFB's future plans for expansion. (See Regulus Group memo, Exhibit 1 to ALUC DEIR comments, p.1 "Travis [AFB] moved, and therefore lost, a circling approach as a consequence of existing turbines.")

Indeed, the cumulative radar degradation problem caused by the development in the entire WRA is severe enough that Travis AFB, along with other agencies including the Department of Defense, Air Force, Department of Energy, and FAA, have been implementing a Pilot Mitigation Program to evaluate infill radars. According to Travis AFB's white paper, "[w]ind turbines create challenges for air traffic control systems such as false returns, excessive clutter, and false radar tracks. To date, there is no effective remedy for their interference." (Travis AFB: Infill Radars as a Wind Turbine Solution, August 7, 2019.) Apparently, the project team that started at Travis AFB has now relocated to the east coast to continue its analysis, as the offshore WTGs there are much larger, and the anticipated mitigation will be greater. The infill radar project is not yet complete. (See ALUC Hearing Transcript, p. 56-57.) When asked about the effects of the proposed project on Travis AFB's future mission, SMUD's representative complained about how hard it is to predict for the future before reporting that Travis AFB would be restricted from creating a low altitude route. SMUD's inability to answer this question completely evidences its lack of analysis into how the proposed and future projects might affect Travis AFB's mission. (See ALUC Hearing Transcript, pp. 51-54.)

The failure of SMUD’s findings to provide any information or substantial evidence that documents if and/or how the agency considered the long-range development plans for Travis AFB, how SMUD plans to support development of Travis AFB over the next 20 years, and how local land use planning and zoning actions would serve to protect the approaches to the airport runways at Travis AFB reflects a fatal flaw in SMUD’s findings and makes them legally inadequate to support the proposed overrule action.

Relationship to California Airport Noise Standards

The state airport noise standards are set forth in Title 21 of California Code of Regulations. These standards are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the Department of Transportation to work cooperatively to diminish noise problems. Although the proposed findings address noise issues (pg. 5), the statements made are conclusory in nature and there is no analysis that explains SMUD’s method of analyzing facts, regulations and policies and the rationale for making the decisions based on the facts involved. Rather, the findings simply state that “... the Project will not cause anyone to be exposed to airport noise.” However, the findings do not discuss whether the proposed project will contribute to the noise sources in the area and the community noise environment in general.

Preventing Creation of New Noise and Safety Problems

The preceding discussion covers the topic of noise. With respect to safety, the findings must document any inconsistencies between the proposed project and safety compatibility criteria in the TALUCP. In addition, the findings should describe the measures taken to assure that risks – both to people and property on the ground and to the occupants of aircraft – associated with the proposed project are held to a minimum and falls within a level of acceptable risk. Specifically, and importantly, the actions taken by SMUD in approving the proposed project must “prevent the creation of new noise and safety problems.”

The findings have not referred to relevant data, information, or guidelines that indicate that the proposed project will not create new safety problems. To the contrary, the ALUC determined and the record clearly reflects, that because the proposed turbines would be over 100 feet tall and fall within the line of sight, the proposed project would not be compatible with the TALUCP provisions. It is important to emphasize that SMUD is not proposing to replace like for like. SMUD’s project proponent and its expert Westslope, concede this issue. (See, e.g., ALUC Hearing Transcript, pp. 73-74; Westslope’s March 11, 2021 memo p. 1 “the proposed development will be within line-of-sight and will interfere with the Travis AFB DASR” and p.2 the “LUCP considers any land use involving a wind turbine that is within line-of-sight of the Travis AFB DASR to be incompatible.”) The ALUC’s consultant ESA agrees that the proposed project is not compatible as the WTGs will be in the line of sight, as does Travis AFB. (ESA memorandum dated May 6, 2021 pp. 2-3; 60th Air Mobility Wing memorandum of January 11, 2021.)

The proposed findings try to dance around this issue by arguing that because there is already “baseline interference with aerial navigation in the form of transmission towers onsite currently reaching almost 500 feet AGL, ...” the proposed project would somehow be consistent with the State Aeronautics Act. Nothing could be further from the truth. In fact, section 21670 specifically requires the orderly development of the area surrounding airports to prevent the creation of new noise and safety problems. The fact that there is already baseline interference and tall structures in the vicinity of Travis AFB does not negate the requirement that no new safety problems are created. In fact, that is precisely why the TALUCP has Section 5.6.1(b) - to prevent new wind turbines that are greater than 100 feet in height AGL and within a line-of-sight of Travis AFB DASR Radar Installation. The criteria of Section 6.2.4(c)(6), which provides the ALUC with some

limited discretion to find normally incompatible uses compatible under certain circumstances, and when issues are safety are not exacerbated, simply does not apply here. Certainly, this Section was not provided to allow the ALUC to end run the very core of the State Aeronautics Act which requires the ALUC to prevent the creation of new safety problems. Any use of this discretion with respect to the proposed project's compatibility with the TALUCP would also necessarily have a ripple effect for the compatibility of future wind turbine projects in the area. The ALUC's failure to comply strictly with the Policy 5.6.1(b) would result in new safety impacts that would be insurmountable in the future and would, undoubtedly, and eventually result in severe implications to the continued viability of Travis AFB. The ALUC determined that the discretionary authority provided by Section 6.2.4(c)(6) was not applicable to the proposed project and nothing in the findings provides evidence to demonstrate otherwise.

The issue here is not whether the ALUC should have exercised its discretion under Section 6.2.4(c)(6) to provide site-specific exception criteria (it did not), but whether the proposed project creates new safety problems and, therefore, is not consistent with the State Aeronautics Act. It is clear from the record (and the information provided in SMUDs findings) that the proposed project is inconsistent with the purposes of section 21670 because it would create new safety problems. No findings can be made which indicate otherwise.

In summary then, it is clear from the proposed findings themselves that the proposed project *would* create a new incompatible use. The findings fail to address this new incompatible use and how it is consistent with the purposes of section 21670 and are therefore, not adequate under the law.

Protecting Public Health, Safety, and Welfare by Ensuring Orderly Expansion of the Airport

This purpose is essentially the same as the first one listed above; therefore, please see the discussion above.

Minimizing the Public's Exposure to Excessive Noise and Safety Hazards

Key words in this component of the law's purpose are *minimize* and *excessive*. The phrase "to the extent areas are not already devoted to incompatible uses" is significant and applicable as well because of the cumulative impact of adding to an already incompatible area of land uses, similar to what exists around Travis AFB.

The language used in the statute implies a quantitative assessment of noise exposure and safety hazards. The purpose of the statute is not merely to reduce the public's exposure to noise and safety hazards, but to minimize exposure in areas with excessive noise or safety concerns. To adopt a finding demonstrating consistency with this purpose, SMUD first must determine whether the existing noise exposure or safety hazards are excessive. The findings do not make this determination. Rather, the findings simply present the baseline conditions as a reason why SMUD should also be allowed to build wind turbines that may, in fact, result in safety hazards. Certainly, the findings do not provide any evidence that the existing safety hazards, including the existing baseline interference with aerial navigation in the form of transmission towers onsite currently reaching almost 500 feet AGL, with planned increases by the tower owners at close to 600 feet, are not already excessive.

Another example of a danger to the public that has been ignored by SMUD is the degradation of DASR in the context of Travis AFB's surveillance of civilian aircraft. SMUD's proposed findings sidestep this issue by pointing out that "published visual flight rules (VFR) operations will not be affected." The narrative centers around findings that the blades will not extend nor will there be any physical obstructions to the flight path of these aircraft. There is no discussion regarding radar,

and one can only guess that SMUD concludes there will be no negative effects because the planes will be picked up by the MSSR radar, as they will have transponders. While transponders are required for commercial aircraft, most private civilian planes are not required to, nor do they in fact have, transponders if they are flying under visual flight rules and below 10,000 feet in the airspace classified as D (within five miles of Travis AFB) or E. (14 CFR § 91.215.) Many private aircraft headed to small municipal airports, such as Napa's or the Nut Tree Airport in Vacaville, fly in this area. The inability for Travis AFB air traffic controllers to see even a portion of them at any given time is a safety concern that appears to remain unmitigated.

Additionally, the concerns raised by the ALUC's expert Regulus regarding the proposed project resulting in false radar targets, radar screen clutter, and air traffic controller overload are treated in cursory fashion by SMUD. Simply, the findings declare that the proposed project will have either "minimal impacts" or no adverse effects in a conclusory manner. For the probability of detection analysis, SMUD attempts to show Travis AFB's conclusions that the proposed project "should have minimal negative impact on Travis AFB operations" in a positive light. However, the impact overall will be *negative*, which is not the same as zero impact and certainly not an improvement on existing conditions. The findings, therefore, do not meet legal muster.

Even if the existing noise and safety hazards are not excessive, then the actions taken by SMUD must "prevent the creation of new noise and safety problems" (see discussion above). If the existing exposure is excessive, SMUD must show how its action in overruling the ALUC determination of inconsistency nonetheless minimizes additional exposure to those noise and safety concerns that have been identified. Rather than focusing on this issue, the findings simply rely on the fact that there are already incompatible uses (i.e., radar degradation and height above 100 feet in the line of site of Travis AFB DASR); therefore, the findings argue, the additional safety issues identified by ALUC, including an increase in radar clutter and related issues, are simply irrelevant because there are already incompatible land uses. This is simply backward and cannot withstand legal challenge. The law does not allow new uses to be deemed "compatible" simply because they comply with existing incompatible uses. Rather, the purpose of an airport land use compatible plan is to prevent future incompatible land uses. That is precisely what the policies of the TALUCP provide (including Policies 5.6.1 and 6.2.4). This is not a situation where "infill development" should be allowed because of the surrounding land uses. Rather, the TALUCP is clear, no wind turbine greater than 100 feet in height AGL shall be within a line-of sight of Travis AFB DASR Radar Installation. Any proposed project that does not comply with this criteria is incompatible with the TALUCP.

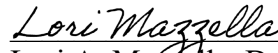
Essentially then, SMUD must demonstrate how an action to overrule would not create a new incompatible use or would not expose additional persons or property to new safety hazards. The findings do not meet this legal burden and are, therefore, inadequate to support SMUD's proposed overrule of the ALUC's incompatible finding.

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Conclusion

For the reasons discussed in detail in this letter, the proposed findings in connection with SMUD's proposed decision to overrule the ALUC determination of incompatible for the proposed project is not consistent with State law requirements. We continue to appreciate the time and coordination efforts that SMUD has spent in meeting with representatives of ALUC and discussing these issues.

Sincerely,



Lori A. Mazzella, Deputy County Counsel
Solano County ALUC Counsel

cc: SMUD Board of Directors

Buck Cutting, Project Development Manager, Power Generation

Joe Schofield, Deputy General Counsel

James Leland, Solano County ALUC staff

Terry Schmidtbauer, Solano County ALUC Secretary

Solano County ALUC Commissioners

Solano County Board of Supervisors

Birgitta Corsello, Solano County CAO

RESPONSES TO ALUC COMMENT LETTER

The Solano County Airport Land Use Commission (ALUC) submitted comments on SMUD's "Proposed Decision and Findings that the Solano 4 Project Is Consistent with the State Aeronautics Act" (Findings). Pursuant to State Aeronautics Act (Act) Section 21676,¹ ALUC's comments are only "advisory" and, regardless, are meritless. Among other things, ALUC's interpretation of the relevant statutes is largely unsupported citations to legal authority. Although not necessary, further explanation is provided below and in the attached letter from Westslope Consulting (August 18, 2021): "Solano County Airport Land Use Commission's Response to SMUD's Proposed Overrule Findings."

Support Development Over the Next 20 Years

ALUC asserts that the Act requires SMUD to address its support of Travis Air Force Base (Travis AFB) operations over the next 20 years. SMUD, however, does not have jurisdiction over third-party land uses surrounding Travis Air Force Base (AFB) or even in the Wind Resource Area as a whole, only over the projects SMUD itself chooses to develop in furtherance of its public purposes, which are limited to the production, transmission, and delivery of electrical energy. SMUD's Findings are appropriately limited to those Act purposes related to SMUD's specific plan for the Project.

Lost Runway

ALUC specifically commented that prior development in the Wind Resource Area led to the loss (actually relocation) of a runway approach: "there is no acknowledgement of the fact that Travis AFB has already lost an approach to development in the WRA." The ALUC did not suggest, much less provide evidence to the effect that, the relocated runway imposed a limitation on the operation of Travis AFB or suggest the relocation was related to a SMUD project. The ALUC also did not suggest the Project would or even could impose a runway-related impact on Travis AFB operations, nor could it, since the Project is located 12 to 15 miles from the Base.

ALUC Speculation Regarding Training Space

ALUC was dismissive of SMUD's response at the ALUC's hearing on the Project to an ALUC commissioner's speculation about possible future limitations on Travis AFB's training space. SMUD's response to the ALUC Commissioner's speculation about impacts on Travis operations aptly noted that the Project site is up to 15 miles from Travis AFB and is already burdened by transmission towers that already preclude Travis's use of the physical space that is to be occupied by the Project towers.

Protection of Runways

ALUC asserted that SMUD must consider how protective local use and zoning decisions are of Travis AFB's runways. No one, including the ALUC, has suggested the Project would have an impact on Travis AFB's runways. Travis AFB itself, far from suggesting such an impact, concluded the Project would have minimal negative impact and the Department of

¹ All Section references are to the Public Utilities Code unless otherwise designated.

Defense concluded the Project “will not present an adverse impact to military operations.” Again, the Project is 12 miles from Travis AFB at its closest.

Findings Regarding Noise

The ALUC also submitted comments that the Findings should include more detailed analysis related to the State Airport Noise Standards and should analyze the Project’s contribution to community noise generally. The comment reflects a fundamental misunderstanding of the Act and the noise standards. The Act is intended to protect sensitive receptors from airport noise. The noise standards, likewise, establish “a mandatory procedure which is applicable to all airports in California that are required to operate under a valid permit issued by the department [of Transportation].” (Cal. Code Regs., tit. 21, § 5105 [emphasis added].) The airport noise standard is “for the acceptable level of aircraft noise for persons living in the vicinity of airports [and] is established to be a community noise equivalent level of 65 decibels.” (*Id.* at 5012 [emphasis added].) The only incompatible uses are those which are especially vulnerable to airport noise, such as homes, schools, and churches. (*Id.* 5014.) There is nothing in the standards to hint at the idea of addressing sources of noise other than from airports. Wind turbines are not vulnerable to airport noise and nothing in the Act or the noise standards suggests the need for working to minimize noise by operations other than airports. The Finding on this issue was brief intentionally to reflect the fact that, under the Act, noise is not an issue that applies to the Project.

Findings Regarding Compatibility with the Travis Plan

The ALUC’s comment that the Findings should address compatibility with the Travis AFB Land Use Compatibility Plan (Travis Plan), by documenting any inconsistencies between the proposed project and safety compatibility criteria in the Travis Plan, also reflects a misunderstanding of the Act. The reason local agencies such as SMUD may override an ALUC’s finding of inconsistency is grounded not in whether the local agency finds its plan is consistent with an airport land use commission’s airport land use plan, but on whether the local agency’s plan is consistent with the purposes of the Act. The Findings discuss in detail why the Project is consistent with the Act’s purposes.

New Safety Problems

The ALUC comments go on to assert that the Project “would create new safety problems,” but doesn’t actually identify any new safety issues that might be caused by the Project. The Findings address all safety concerns with substantial evidence in the record, including modeling by SMUD’s consultants, Travis AFB, Department of Defense, and the FAA, none of which identified any safety issues posed by the Project other than a vectoring altitude issue that the FAA made a modification to accommodate, as described in the Findings and below.

The ALUC comments also make the argument that the Project is not consistent with the Act’s purpose of preventing new safety problems, not because it creates a new safety problem, but because it does not cure existing safety problems, providing the example of existing and approved transmission towers on and adjacent to the Project site that extend

to a height nearly equal to that of the Project's proposed turbines. The towers are not part of the Project; they are not owned or operated by SMUD; they are simply part of existing conditions. To the extent that the proposed turbines restrict the ability of planes to fly at a certain height across the property, the problem is not a new one, but an existing one, and is not connected with the Project. Moreover, the FAA, as well as SMUD's consultants, determined there are no safety issues posed by the turbines. The FAA not only has the expertise to analyze issues of aeronautical safety, but it particularly analyzed this Project and concluded that it will make one minor adjustment to the vectoring altitude in one sector of the Northern California TRACON to ensure safety. The making of a minor change to ensure safety is, by definition, not a new safety issue.

The ALUC also hints that there are existing safety issues within and around Travis AFB due to the presence of the Wind Resource Area. Apart from the fact that the Act's purposes do not include correcting existing safety problems, the assertion is incorrect, as explained in the attached letter from Westslope Consulting. Moreover, in August 2021, SMUD staff reviewed the National Transportation Safety Board Aviation Accident Database in California back to the year 1979, prior to the development of wind turbines in Solano County, and found no reported air collision events in the vicinity of Travis Air Force Base.

Addressing Clutter

The ALUC states that the concerns raised by its expert Regulus "regarding the proposed project resulting in false radar targets, radar screen clutter, and air traffic controller overload are treated in cursory fashion by SMUD. . . . the impact overall will be negative, which is not the same as zero impact and certainly not an improvement on existing conditions." The Findings document why the Project will not cause adverse operational impacts in the form of false radar targets, radar screen clutter, and air traffic controller workload, including reference to a lengthy letter from Westslope Consulting addressing all points in the Regulus letter, which is in turn supported from technical analysis and conclusion from the FAA, Travis AFB and the Department of Defense.

Addressing Radar

The ALUC finally asserts that the Findings do not address radar. To the contrary, the Findings include an extensive analysis of radar issues and determine that not only will the Project not further degrade Travis AFB's primary digital radar, it might even make a minor improvement, and in addition explains that the secondary surveillance radar is not affected by wind turbines at all. The absence of a safety issue is also explained carefully by the FAA, as excerpted in the Findings, and echoed by the conclusions of both Travis AFB and the Department of Defense. The attached letter from Westslope Consulting further addresses the ALUC's assertions about radar issues.

August 18, 2021

Buck Cutting
Sacramento Municipal Utility District
P.O. Box 15830, Sacramento, CA 95852-0830

Re: Solano County Airport Land Use Commission's Response to SMUD's Proposed Overrule Findings

Mr. Cutting,

This letter is in response to some of the assertions made in the "Solano County Airport Land Use Commission's Response to SMUD's Proposed Overrule Findings on the Solano 4 Wind Project" dated July 29, 2021.

The Airport Land Use Commission's (ALUC's) reference to the Sacramento Municipal Utility District (SMUD) statement that "published visual flight rules (VFR) operations will not be affected" has been misinterpreted and is incomplete as quoted. The complete statement from Westslope Consulting's memorandum dated March 30, 2021, states that "[t]he Solano 4 wind turbines are located outside of Travis AFB circling approach areas and will have no effect on the base's published visual flight rules (VFR) operations or on instrument flight rules (IFR) operations." This statement refers to the fact that, in accordance with Federal Aviation Administration (FAA) Order 8260.3D and FAA Order 8260.58A, the Solano 4 Wind Project (Project) will pose no issues for VFR and IFR aircraft from an obstruction standpoint in Travis Air Force Base's (AFB's) circling approach areas.

The ALUC goes on to state that "[t]here is no discussion regarding radar, and one can only guess that SMUD concludes there will be no negative effects because the planes will be picked up by the MSSR radar, as they will have transponders. While transponders are required for commercial aircraft, most private civilian planes are not required to, nor do they in fact have, transponders if they are flying under visual flight rules and below 10,000 feet in the airspace classified as D (within five miles of Travis AFB) or E. (14 CFR § 91.215.)" and "[t]he inability for Travis AFB air traffic controllers to see even a portion of them at any given time is a safety concern that appears to remain unmitigated."

The radar concern expressed by the ALUC was addressed separately in Westslope Consulting's memorandum dated March 30, 2021. First, when discussing the fact that "while there can be adverse effects on the DASR, the Monopulse Secondary Surveillance Radar (MSSR), which is the secondary surveillance radar co-located with the DASR and is the main radar used for air traffic control by the base, was shown to not be effected by wind turbines." It is also noted in Westslope Consulting's memorandum dated March 30, 2021, that "[t]he MSSR interrogates transponder equipment on board the vast majority of aircraft operating in and around the Travis AFB RAPCON's airspace." This last statement is based on my firsthand experience from supporting Travis Air Force Base (AFB) and its subject matter experts in setting up the Digital Airport Surveillance Radar (DASR) and MSSR, conducting and analyzing multiple flight tests, analyzing numerous months of data over the course of several years, and through recommending setting changes in these systems to improve radar performance over the Wind Resource Area. As such, the ALUC is inaccurate in stating that "most private civilian planes are not required to, nor do they in fact have, transponders." It is

also important to note that the Project as well as the entire Wind Resource Area is outside of Travis AFB's Class D airspace. See Figure 1, where the blue dashed line around Travis AFB represents the Class D airspace and the green dots represent the Project. Even though a transponder is not required within Class D airspace, aircraft operating in or transiting the Class D airspace must be in radio contact with Travis AFB in accordance with 14 CFR § 91.129. Aircraft operating over the Wind Resource Area below 10,000 feet above mean seal level, which is Class E airspace, are not required to use a transponder or to be in radio contact with Travis AFB Radar Approach Control (RAPCON) facility; however, pilots must "see and avoid" other aircraft per 14 CFR § 91.113. See and avoid is an inherent part of the United States National Airspace System and is analogous to drivers avoiding other vehicles on the roads. Further, despite the ALUC's unsupported assertion to the contrary, as stated above regarding my firsthand experience, the vast majority of aircraft operating in and around the Travis AFB RAPCON's airspace do, in fact, utilize a transponder. As recently as 2017, Travis AFB encouraged pilots flying in the RAPCON's airspace to use transponders as part of its Mid Air Collision Avoidance (MACA) outreach program.¹ It should also be noted that the caution box to the east of the Wind Resource Area in Figure 1 was added as a mitigation as part of the work conducted by the first Cooperative Research and Development working group. This caution notifies pilots that Travis AFB may not be able to issue traffic advisories for aircraft that are not operating a transponder.

Second, the simple fact is that the 60th Air Mobility Wing's subject matter experts following their evaluation determined that the Project "should have minimal negative impact on Travis AFB operations." This conclusion was provided in a memorandum from Col. Simmons, the Commander of the 60th Air Mobility Wing, dated January 11, 2021. In addition, in a letter dated February 9, 2021, from the DoD's Military Aviation and Installation Assurance Siting Clearinghouse, the Assistant Secretary of Defense's office that oversees the DoD's part of the FAA's review process, stated that the Project "will not present an adverse impact to military operations." Based on these conclusions and based on the FAA's own review of the Project for any concerns they initially identified, the FAA issued extensions to the determinations of no hazard for the Project, which states that the Project "would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities."

The FAA's determinations of no hazard acknowledge that the Project will be within line-of-sight of, that is, visible to the Travis AFB DASR; however, it is important to note that wind turbines being within line-of-sight does not necessarily translate into operational impacts. This fact is the fundamental reason that even though the Project will be within line-of-sight of and cause some level of interference with the Travis AFB DASR, studies show that such effects on the DASR will not result in a material difference to radar performance or air traffic operations. As noted in Westslope Consulting's letter dated March 11, 2021, "Extensive modeling of the Project was conducted to identify a number and specific locations of the wind turbines to ensure that there will be no material difference on the performance of the DASR and on Travis AFB's tracking and display system, the Standard Terminal Automation Replacement System (STARS)." This finding highlights that wind turbines within line-of-sight is a conservative standard and does not consider the actual resultant effects of wind turbines on operations, which is an evaluation that can only be made by local users and their national counterparts that are well verse in this subject matter.

¹ See <https://www.travis.af.mil/Portals/30/documents/MACA.pdf?ver=2017-04-17-160221-203>.

To be clear, instead of relying on a simple radar line-of-sight analysis, Travis AFB, including its subject matter experts, and the FAA conducted technical studies of the Project that ultimately led to the FAA issuing extensions for the determinations of no hazard. The FAA also provided an opportunity for interested parties to comment on and petition the extensions before becoming final on March 9, 2021. Considering the technical studies conducted by Travis AFB and the FAA, Westslope disagrees with the ALUC's comment that "the inability for Travis AFB air traffic controllers to see even a portion of them at any given time is a safety concern that appears to remain unmitigated." Further, regarding the ALUC's statement that "the findings do not provide any evidence that the existing safety hazards, including the existing baseline interference with aerial navigation in the form of transmission towers onsite currently reaching almost 500 feet AGL, with planned increases by the tower owners at close to 600 feet, are not already excessive," Westslope respectively disagrees as well. The FAA, with feedback from the DoD, would not have issued extensions to the determinations of no hazard for the Project if there were existing safety hazards or if construction of the Project would create safety hazards.

Please direct any questions to Geoff Blackman of Westslope Consulting at gblackman@westslopeconsulting.com.

Respectfully,

A handwritten signature in black ink, appearing to read 'G. Blackman', with a horizontal line underneath.

Geoffrey N. Blackman
Owner/Principal
Westslope Consulting, LLC

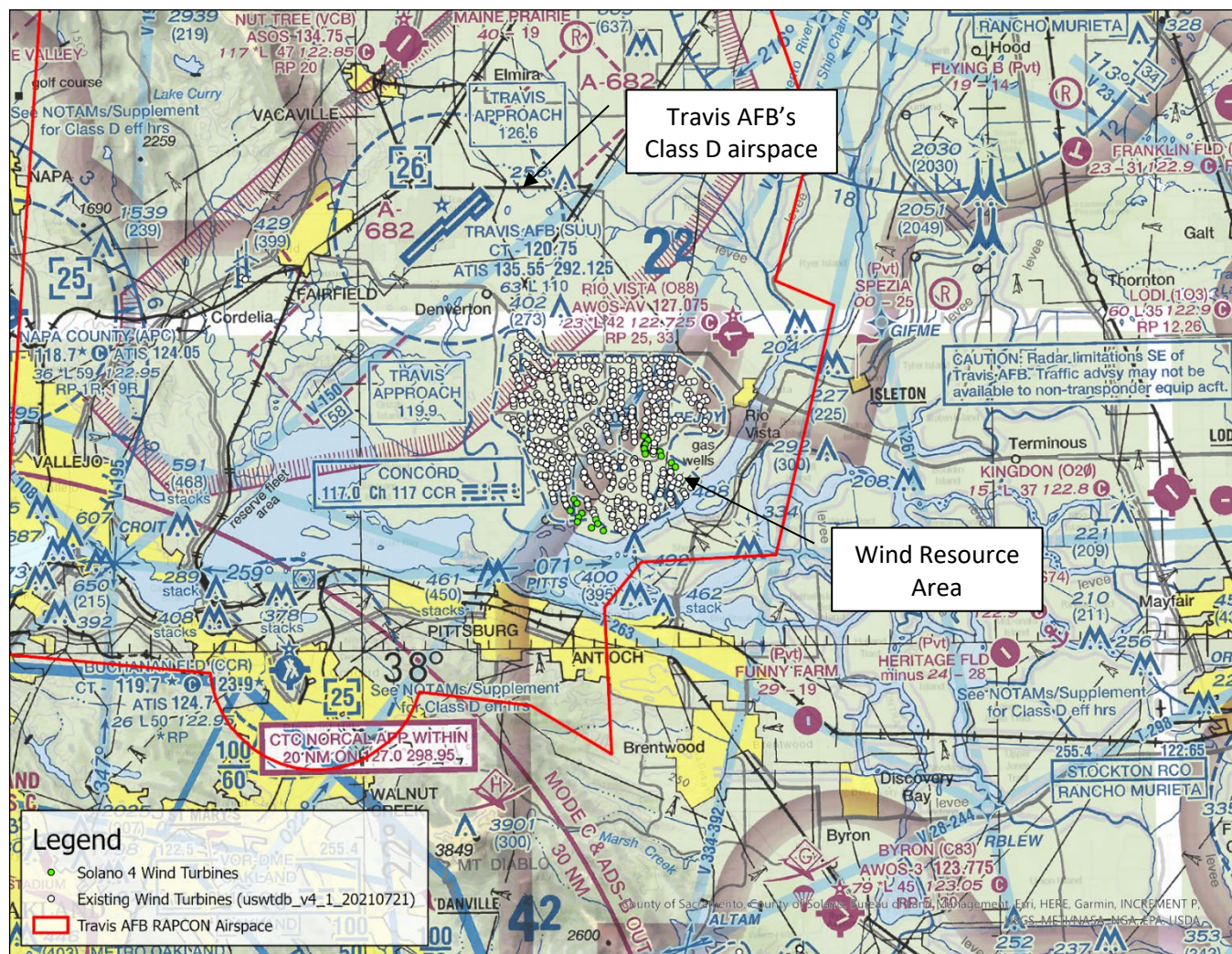


Figure 1

President Bui-Thompson then turned to agenda item 10, statements from the public regarding items not on the agenda. She stated that in accordance with the Emergency Board Meeting Procedures, public comment for items not on the agenda would be provided to the Board electronically and placed into the record if received within two hours after the meeting ended.

Public comment was received and entered into the record regarding Agenda Item 10, a copy of which is attached to these minutes, from the following member of the public:

- Mark Graham

President Bui-Thompson then turned to Directors' Reports.

Vice President Rose reported that he had met with California Solar + Storage Association (CALSSA) and a number of their members as work continues toward the rate hearing at the end of the month. He also reported on his attendance at the Citrus Heights Chamber of Commerce Legislative Reception.

Director Fishman reported on his attendance at the Grid Alternatives North Valley 10th anniversary where he was able to say a few words.

Director Herber reported that she had spoken at a Salvation Army event held in Elk Grove Park. She then reported on her attendance, along with President Bui-Thompson, at the re-opening of the Sacramento Children's Museum as well as her attendance at the Elk Grove State of the County. She closed by thanking the Sacramento Association of REALTORS for the invitation to the Mack Powell Event Center grand opening and the tour of the new facility provided by Erin Teague and Carter Nelson.

Director Kerth thanked staff for their work in evacuations and keeping the lights on despite the Caldor fire. He stated that his heart went out to everyone affected by the fire. He then reported that he had met with representatives from the solar community to talk about the coming rate decision and thanked all for their participation. He closed by urging those who have not received a vaccination to re-think their reticence on the issue.

Director Tamayo reported on his meetings with representatives from the solar community and his attendance at meetings with City of Sacramento Councilmember Valenzuela and SMUD Government Affairs staff regarding electrification efforts. He reported on his attendance at the Oak Park tree planting and stated he had the opportunity to go to lunch with the Pastor Mark Meeks of City Church, who had hosted the event, to talk about the 2030 Zero Carbon Plan and how they might help. He closed by reporting on his participation in the American Leadership Forum (ALF) wilderness event.

Director Sanborn reported that she had also met with representatives from the solar community and attended the Mack Powell Event Center grand opening. She reported on her attendance, along with Directors Herber and Fishman, at a Building Industry Association event in Roseville, as well as the Elk Grove State of the County. She closed by reporting on her attendance at the Slavic Chamber mixer, a meeting set up by the Climate Coalition, and the Grid Alternatives meeting with Director Fishman.

President Bui-Thompson reported on her attendance at the re-opening of the Sacramento Children's Museum. She then reported on her participation, along with Director Kerth, in 2x2 meetings, as well as individual meetings, with Solano County Supervisors Vasquez and Mashburn, and looked forward to working with them and hoped to have a good partnership on the path to a greener and more renewable future for all. She closed by thanking her colleagues and SMUD staff for their volunteer efforts with regard to the community clinic she runs that provides consistent weekly vaccinations.

Gary King, acting Chief Executive Officer and General Manager, stated he would provide an abbreviated report given the late hour. He then reported on the following items:

- 1) **Caldor Fire.** The Caldor Fire, which has been burning in El Dorado County since Saturday. While more than 66,00 acres have burned since the last report, the fire slowed naturally today due to higher humidity and low winds, a positive development following the fire's explosive growth earlier in the week. The fire

remains south of Highway 50 and has not moved any closer to SMUD facilities since Wednesday. The distance is about 1.5 miles from Fresh Pond, 1 mile from Riverton, and at least 5 miles from any of our transmission facilities. As far as Fresh Pond, all of our crews and personnel and equipment have been evacuated from that location. At this time, we do not expect the fire to threaten our powerhouses or high voltage transmission lines, and we do not anticipate having to de-energize our lines. Our hearts go out to our employees and others who have been evacuated as Director Kerth had mentioned – our last report is that we have 43 employees who live in that area who have been impacted, and my understanding is that they are either under mandatory evacuation orders or under evacuation warning. We have had the supervisor of those employees reaching out to them to make contact with them, and we also have a care team that has been put together that will be looking to respond to and support those employees through this crisis. But our hearts do also go out to others who have had to evacuate their homes and businesses, and we do want to acknowledge firefighters and first responders who are working tirelessly to keep everyone safe and to control that fire.

- 2) **SMUD Campus Re-Entry.** The Executive Team made the decision last week to postpone the re-entry to SMUD campuses until January 3, 2022. This applies to employees who are working remotely because of the COVID-19 pandemic. We had originally scheduled to begin that Phase 1 re-entry to begin in September, but the health and wellbeing of our employees and community remains our top priority. The decision to delay re-entry was based on many factors, including the increase in COVID-19 cases across our region and uncertainties surrounding the virus's aggressive variants. While 1,400

employees are currently working remotely, there are about 750 employees working onsite at SMUD in some capacity. They are doing a great job following applicable health and safety protocols.

3) Board Video. The Board video is deferred to the next meeting.

President Bui-Thompson requested the Summary of Board Direction, but there were no items.

No further business appearing, President Bui-Thompson adjourned the meeting at 7:58 p.m.

Approved:

President

Secretary

Exhibit to Agenda Item #9a

Solano 4 Wind Project (Project):

- a. Certify the **California Environmental Quality Act (CEQA) Solano 4 Wind Project (Project) Final Environmental Impact Report (FEIR)**, adopt the **Mitigation Monitoring and Reporting Program** for the **Project**, adopt the **CEQA Findings and Statement of Overriding Considerations in Connection with the Solano 4 Wind Project**, and approve the **Project**.

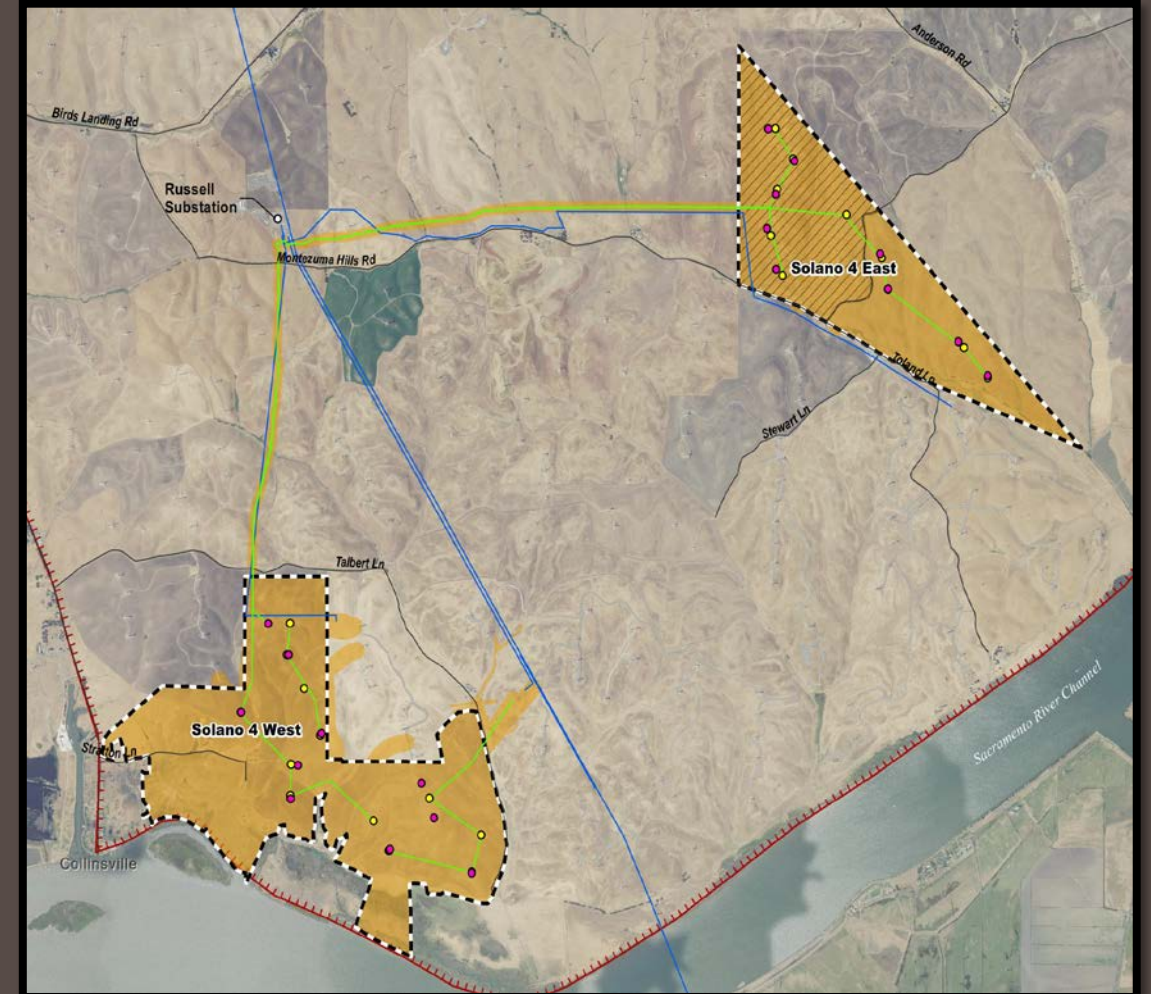
Board of Directors Meeting

Thursday, August 19, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

Solano 4 Wind Project Overview

System Size	Up to 91 MW (306 MW total) ~2,549 acres
Site Preparation	Remove Solano I turbines, construct new roads, foundations and pads, reclaim old roads
Timing	<ul style="list-style-type: none"> • EIR/Permitting: 2019-2021 • Engineering: 2022 • Construction: 2023-2024 • Operational: 2024-2025
Objectives in design	<ul style="list-style-type: none"> • Minimize or reduce radar impact • Maximize energy output within available property • Minimize permanent impacts throughout site



Project Need

- Furthers SMUD's objective to provide sustainable power supply as part the integrated resource plan
- Will provide dependable renewable energy to help meet SMUD's renewable portfolio standards obligations, aligned with Senate Bill 100 (enacted in 2018)
- Will aid in improving Sacramento Valley Air Basin air quality, decreasing reliance on fossil fuel combustion for electricity generation, and reduce exposure to price volatility



Alternatives Analysis

- Alternatives considered by SMUD but not evaluated
 - Offsite alternatives
 - Alternative generation technologies
- Project alternatives analyzed
 - No project alternative
 - Reduced turbine height alternative
- The preferred alternative is the project as described in the draft and final EIR

Public Review Process – Notice of Preparation and Draft EIR

- Notice of Preparation published for 30-day public comment period January 9, 2019; Scoping Meeting on January 22, 2019
- Draft Environmental Impact Report published for 45-day public comment period July 23, 2019; Public Meeting on August 20, 2019
- Published at SMUD.org, Sacramento Bee, The River News-Herald and Isleton Journal
- Mailed to landowners within 1 mile of the project site; Agencies; Native American Tribes
- Available at Customer Service Center, East Campus Operations Center, and Solano County Library

Notice of Preparation Commenters

- California Department of Conservation, Division of Oil, Gas, and Geothermal Resources
- California Department of Fish and Wildlife
- Central Valley Regional Water Quality Control Board
- Delta Stewardship Council
- Native American Heritage Commission
- Shute, Mihaly & Weinberger LLP (Representing ALUC)
- State of California Governor's Office of Planning and Research
- Yolo-Solano Air Quality Management District

Draft EIR Commenters

- State Clearinghouse Office of Planning and Research (OPR)
- California Department of Fish and Wildlife
- Delta Stewardship Council
- California Department of Transportation, Division of Aeronautics
- Solano County Department of Resource Management
- Shute, Mihaly & Weinberger LLP (Representing ALUC)

Environmental Analysis

- Mitigation Measures for:
 - Aesthetics
 - Air Quality (Significant and Unavoidable)
 - Biological Resources
 - Archaeological, Historical, Resources
 - Tribal Cultural Resources
 - Geology and Soils
 - Hazards and Hazardous Materials
 - Hydrology and Water Quality
 - Transportation
- Sixty mitigation measures will reduce all but one potentially significant impact to less-than-significant level
- Construction emissions of NO_x are Significant and Unavoidable

Standard for Statement of Overriding Considerations

- A project may be approved even though unmitigable impacts would be sustained
- Provides specific reasons why the project benefits outweigh the adverse effect
- If the benefits outweigh the unavoidable adverse environmental effects, those effects may be considered “acceptable” [CEQA Guidelines Section 15093 (a)]



SMUD Benefits to Justify Statement of Overriding Considerations

- Sustainable power supply
- Diversifies SMUD's energy portfolio
- Reduces exposure to price volatility
- Adds additional 91 MW of power, culminating in 306 MW of clean renewable wind energy
- Significant air quality benefits offsetting approximately 132,000 metric tons of carbon emissions annually, otherwise produced from fossil fuel facilities
- Critical to achieving a carbon-free energy portfolio by 2030

SMUD Board Alternatives

- Certify the Environmental Impact Report for the SMUD Solano 4 Wind Project, adopt the Findings and Statement of Overriding Considerations, adopt the Mitigation Monitoring and Reporting Program, and approve the project
- Return the CEQA analysis to staff for further study
- Reject the CEQA analysis and the project



Requested SMUD Board Action

- Certify the California Environmental Quality Act (CEQA) Environmental Impact Report
- Adopt the Findings and Statement of Overriding Considerations;
- Adopt the Mitigation Monitoring and Reporting Program; and
- Approve the Project

Exhibit to Agenda Items #9b & 9c

- b. Determine and adopt **Findings** that there is **No Feasible Alternative** to the **Project**, rendering zoning ordinances inapplicable to the **Project** pursuant to California Government Code section 53096.
- c. Determine the **Project** is consistent with the purposes of the **State Aeronautics Act** and adopt **Findings**, overriding a determination by the **Solano County Airport Land Use Commission** that the **Project** is inconsistent with the **Travis Air Force Base Land Use Compatibility Plan**.

Board of Directors Meeting

Thursday, August 19, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

Government Code Section 53096

Background:

Government Code section 53091(e) exempts from zoning ordinances power generation projects but not “transmission” by local agencies.

In a recent case (*City of Hesperia v. Lake Arrowhead*), the Court held that the term *transmission* is as defined in Websters, not the utility industry, and thus would essentially eliminate from the exemption any facility that involves the “flow of electricity.” This would include any power generation project, thus effectively eliminating the power generation exemption altogether.

Government Code Section 53096 (cont.)

In the words of the Court:

“We are not troubled by the possibility that the absolute exception in section 53091(e) *may never apply to the location or construction of electrical energy facilities*. In the same legislation that first amended section 53091 to include the exception to the exemption, the Legislature also enacted section 53096(a), which provides a qualified exemption to a local government's land use regulations under certain conditions.”

Government Code Section 53096 (cont.)

Section 53096(a) authorizes the governing board of a local agency such as SMUD, by vote of four–fifths of its members, to render zoning ordinances inapplicable to a proposed use of property if the local agency at a noticed public hearing determines by resolution that there is no feasible alternative to its proposal.

The Section also requires notice to be provided to local landowner(s) and at the project site. Notice of tonight's hearing was provided by letter to all landowners within 300 feet of the project. Notice was also posted at the site.

Government Code Section 53096 (cont.)

The Board's making a finding of no feasible alternative to the Solano 4 Wind Project will make all transmission-related zoning ordinances nonapplicable to the Project. This would apply to the wind turbines themselves as well as any ordinances that would otherwise apply to the laying of generation collection feeder circuits to convey the energy to the substation. The Project does not involve the construction of transmission facilities in the sense that electrical utilities use the term, and the way SMUD has interpreted the term in Section 53091(e) since its adoption.

The ordinances would include any by the County and the Solano County Airport Land Use Commission.

No Feasible Alternative

Why is there no feasible alternative?

1. The 2030 Zero Carbon Plan provides a roadmap of how SMUD can achieve zero carbon emissions, and **all scenarios will require wind energy as part of the portfolio**. Wind is a highly effective counterpart to solar, and, as of today, solar, storage, hydro and other technologies will not achieve the goal without wind. Moreover, we expect that in addition to wind, we will need unproven technologies as well. This analysis is also consistent with the EIR.

No Feasible Alternative (cont.)

Why is there no feasible alternative?

2. There is no alternative wind technology for the Project. SMUD commissioned a study by Black and Veatch which evaluated various technologies to achieve the 2030 Zero Carbon goal. The Study found that minimal offshore wind would be available to SMUD by 2030, leaving onshore wind.

No Feasible Alternative (cont.)

Why is there no feasible alternative?

3. The Black and Veatch study also evaluated other onshore wind projects, but the cost is an additional 33% above Solano 4, and there are topographical access challenges to those sites. Staff also identified the timeline to navigate the California Independent System Operator (CAISO) connection process would make eliminate such sites, leaving Solano.

Solano 4 contains the only land within the Solano Wind Resource Area with end of life and nearing end of life projects and some undeveloped.

State Aeronautics Act

SMUD applied to the Solano County Airport Land Use Commission (ALUC) for an advisory opinion on the compatibility of the Solano 4 Wind Project with the Travis Air Force Base Land Use Compatibility Plan (Travis Plan).

The ALUC found the Project incompatible with the Travis Plan, despite its own consultant finding SMUD's submitted material persuasive that the Project could be approved under a section of the Plan allowing approval based on site specific conditions.

State Aeronautics Act (cont.)

Under Public Utilities Code section 21676, a local agency's governing board may overrule an airport land use commission's finding of inconsistency by a two-thirds vote as long as it first makes specific findings that the proposed action is consistent with the purposes of the State Aeronautics Act.

The Act's two relevant purposes in this case are to avoid noise and safety impacts.

The following findings are relevant to determining the Project is consistent with the purposes of the Act.

State Aeronautics Act (cont.)

Finding: SMUD is a local agency under the Act. Supported by plain language of the statute and legislative history.

Finding: The Project is in an area already devoted to an incompatible use. The Wind Resource Area is the site of eight currently operational wind projects, consisting of 528 turbines, of maximum heights ranging from 340' to 428' and majority of these are already located within the Travis AFB DASR's line-of-sight. The Project sites are the location of current and former wind projects or are burdened by existing impediments to air navigation in the form of 500-foot-tall plus transmission towers.

State Aeronautics Act (cont.)

Finding: the Project will have no noise impacts. The Act's noise purpose is to protect residents from airport noise. The Project will make not airport noise and includes no housing or other noise sensitive uses.

Finding: The Project will not cause safety issues for people on the ground or aircraft in flight. FAA determined the Project would pose no hazard to air navigation as long as SMUD meets certain standard requirements (marking/lighting).

State Aeronautics Act (cont.)

Finding: The Project will not cause a significant impact to radar.

- The Project was designed to have **no net increase** in impacts to digital radar. Modeling by SMUD consultant, the FAA, Travis Air Force Base, and the Department of Defense confirm, in different terms, that there will be no material difference to the radar or military operations as a result of the Project.
- Wind turbines do not affect secondary radar systems that rely on transponders to communicate with aircraft in flight.
- Per our consultant, the vast majority of aircraft in the vicinity use transponders.

State Aeronautics Act (cont.)

Finding: There will be no cumulative impacts to air safety.

- FAA: “The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.”
- “Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.”

State Aeronautics Act (cont.)

Summary.

- Westslope's studies indicate that removing and replacing 23 existing wind turbines with ... up to 19 150-meter rotor diameter modern wind turbines will have no material difference to the DASR or on the air traffic controllers' displays in STARS.
- Department of Defense Clearinghouse determined that the Project "will not present an adverse impact to military operations."
- Travis Air Force Base concluded the Project "should have minimal negative impact on Travis AFB operations."

Requested Action

9. Solano 4 Wind Project (Project):

- a. Certify the **California Environmental Quality Act (CEQA) Solano 4 Wind Project (Project) Final Environmental Impact Report (FEIR)**, adopt the **Mitigation Monitoring and Reporting Program** for the **Project**, adopt the **CEQA Findings and Statement of Overriding Considerations in Connection with the Solano 4 Wind Project**, and approve the **Project**.
- b. Determine and adopt **Findings** that there is **No Feasible Alternative** to the **Project**, rendering zoning ordinances inapplicable to the **Project** pursuant to California Government Code section 53096.
- c. Determine the **Project** is consistent with the purposes of the **State Aeronautics Act** and adopt **Findings**, overriding a determination by the **Solano County Airport Land Use Commission** that the **Project** is inconsistent with the **Travis Air Force Base Land Use Compatibility Plan**.



Questions?

August 16, 2021



Subject: Solano 4 Wind Project

SMUD Board Members,

350 Sacramento supports the proposed Solano 4 wind project in the Montezuma Hills of Solano County. We believe that the clean, carbon-free energy from this project is needed to support SMUD's Integrated Resource Plan and SMUD's stated goal to be zero carbon by 2030. According to SMUD Staff's analysis, the Solano 4 wind project will produce enough power supply 40,000 homes and will result in an estimated savings of 65,500 short tons of carbon per year.

We understand the Solano County Airport Land Use Commission's (ALUC) recently issued a finding of inconsistency for the Solano 4 project with the Travis Air Force Base (AFB) Land Use Compatibility Plan. We believe this ALUC finding is mistaken and could result in delaying the project.

Our position is that this ALUC finding should be justifiably over-ridden by SMUD, based on the following points:

1. The Federal Aviation Administration (FAA), Department of Defense (DoD), and Travis AFB all determined that Solano 4's planned replacement of existing wind turbines with larger units would have no negative impact on the operations of Travis AFB.
2. Solano County ALUC's own staff found the project would have no adverse impact to public safety, no excessive noise exposure, and only a minimal negative impact on Travis AFB operations¹.
3. The project will provide overwhelming greenhouse gas savings at a critical time given our current climate emergency and SMUD's pledge to become carbon free by 2030.
4. Finally, an override would also be consistent with Public Utilities Code section 21670.

For all these reasons we urge the SMUD Board to override the Solano County ALUC's position and move forward with the Solano 4 project.

Regards,

Peter Mackin

for 350 Sacramento

¹ <https://solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=35250>, pgs 8-9.

From: jromero_cm400.org
To: [Public Comment](#)
Cc: [Danny Bernardini](#)
Subject: [EXTERNAL] Written comment on Agenda Item 9, SMUD Board Meeting August 19, 2021
Date: Wednesday, August 18, 2021 2:10:48 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To whom it may concern.

My name is Jorge A. Romero Business Agent for the Cement Masons' Local 400. I am writing to you because my members and I support (The Solano Wind Project) this project will bring jobs to our members. Thank you for your attention to this matter.

Regards,

Jorge A. Romero, Business Agent
Cement Masons' Local 400
404 Nebraska St. # E
Vallejo, CA 94590
(707)644-8423 o
(707)720-4070 c

From: [Sam Appel](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Written comment on Agenda Item 9, SMUD Board Meeting August 19, 2021 - BlueGreen Alliance
Date: Thursday, August 19, 2021 3:23:32 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The Blue Green Alliance supports the approval of the Solano IV Wind Project as it is good for the environment, the local community, and workers. Solano IV represents exactly the type of project that we need to equitably address global warming: it creates renewable energy while providing good paying, middle class jobs that support apprenticeship training and career path opportunities for local workers.

From: Doug LeMoine <DLeMoine@local324.org>
Sent: Thursday, August 19, 2021 6:13 PM
To: Public Comment
Subject: [EXTERNAL] Solano 4

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

My name is Doug LeMoine, Business Representative for Laborers Union Local 324 Napa and Solano Counties. I applaud SMUD wholeheartedly for their efforts to assure all concerns have been addressed, the final EIR has been reviewed and all appropriate mitigations have been reviewed and considered! I have personally worked on Solano 2 and Solano 3 and Laborers Local 324 supports SMUD in their efforts to get Solano 4 Approved! SMUD has a very respectable record of doing these projects right and I can attest to that first hand!

Thanks for your time

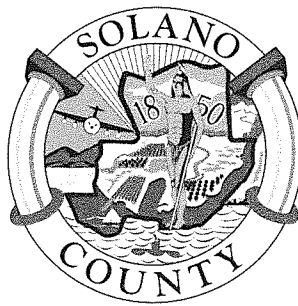
Doug LeMoine
Field Representative
LiUNA Local 324
[4727 Mangels Blvd.](#)
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RYAN K. FITZGERALD
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KIMBERLEY G. GLOVER
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JO ANN IWASAKI PARKER
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JAMES W. LAUGHLIN
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RAMONA M. MARGHERIO
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LORI A. MAZZELLA
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ADRIENNE L. PATTERSON
DEPUTY COUNTY COUNSEL
CLARISA P. SUDARMA
DEPUTY COUNTY COUNSEL
DANA VAUGHN
DEPUTY COUNTY COUNSEL
CYNTHIA GORDON FOREMAN
CLAIMS AND CIVIL LITIGATION MANAGER

August 19, 2021

Board of Directors of the
Sacramento Municipal Utility District

Via email: PublicComments@smud.org

Re: Final Environmental Impact Report for the Solano 4 Wind Project
Agenda item 9
August 19, 2021 Board of Directors Meeting

Dear Board President Bui-Thompson and Members of the Board:

At your August 19, 2012 meeting, your staff will be asking you to certify the Final Environmental Impact Report (FEIR) for the District's Solano 4 Wind Project (Project) and to approve that project. We urge the Board *not* to certify the FEIR and to delay acting on the Project until a legally adequate EIR has been prepared and circulated for public comment. In its present form, the FEIR suffers from at least three fatal defects:

1. It demonstrates that SMUD has not proceeded in the manner required by law,
2. It fails to evaluate properly the significance of the Project's impacts to Travis AFB and related airspace, and
3. It fails to evaluate a reasonable range of project alternatives.
- 4.

I.

SMUD HAS NOT PROCEEDED IN THE MANNER REQUIRED BY LAW

An accusation that a public agency has not proceeded in the manner required by law during the CEQA process should never be leveled unless there is a strong legal basis for the accusation coupled with a significant likelihood of a different outcome if the agency corrects its

error, either on its own initiative prior to approving the project or pursuant to a court order afterwards. Both of those criteria are satisfied here. The FEIR repeatedly asserts that the Solano County Airport Land Use Commission (ALUC) had no legal jurisdiction to review the Project and implicitly acknowledges that SMUD acquiesced to ALUC review in form only and not in substance. The Legislature intended the ALUC review process to be substantive and not merely a procedural hoop for public agencies such as SMUD to jump through on their way to a predetermined project approval action.

The misunderstanding of the ALUC review process described in the FEIR appears to be grounded in a fundamental misunderstanding of both California law in general and the California Constitution in particular. Without a proper understanding of the legal relationship between the County, the ALUC, and SMUD, as well as their respective sources of authority, the FEIR was unable to properly describe the ALUC review process required for the Project.

A. The ALUC is a State Agency and not a Department of County Government

The FEIR contains numerous misstatements about the ALUC's jurisdiction, authority, and process, but the following statements at pages 2-57 and 2-58 of the FEIR's response to comments from the County expose the root of the FEIR's flawed legal analysis:

The ALUC's exercise of authority in drafting the LUCP is an exercise of the same zoning authority conferred by the Legislature upon cities and counties.

[W]hile it may have some independence, the ALUC's powers in drafting and approving the LUCP are an extension of Solano County's police powers, and not separate powers of a wholly independent state agency.

These are fundamentally incorrect statements of the law. The County's authority to enact and enforce zoning regulations within the unincorporated area is conferred on it by the Constitution and not by the Legislature. The California Supreme Court has explained this point as follows:

Land use regulation in California historically has been a function of local government under the grant of police power contained in article XI, section 7 of the California Constitution. "We have recognized that a city's or county's power to control its own land use decisions derives from this inherent police power, not from the delegation of authority by the state."

(Big Creek Lumber Co. v. County of Santa Cruz (2006) 38 Cal.4th 1139, 1151, quoting DeVita v. County of Napa (1995) 9 Cal.4th 763, 782.)

Article XI, section 7 of the California Constitution states, “A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws.” The general laws referenced in article XI, section 7 are federal laws and laws enacted by the Legislature.

Keep in mind that, in California, all political power is inherent in the people. (Cal. Const., art. II, § 1.) Through the Constitution, the people have allocated that power between local and state government. As described above, they have allocated police power over local matters to city and county government, subject to conditions, and they have vested the legislative power of the State in the Legislature, subject to their reserved powers of initiative and referendum. (See Cal. Const., art IV, § 1.)

Pursuant to this constitutional grant of statewide legislative power, the Legislature has enacted several laws that are relevant to the present matter, including the following:

- Division 9, Part 1, Chapter 4, Article 3.5 of the Public Utilities Code (§§ 21670 – 21679.5), hereinafter “ALUC Law”, which is within the State Aeronautics Act (Pub. Util. Code, § 21001 et seq.)
- The Municipal Utility District Act (Pub. Util. Code, § 11501 et seq.) and Chapter 218 of the Statutes of 1921
- The California Environmental Quality Act (Pub. Res. Code, § 21000 et seq.)
- Title 5, Division 2, Part 1, Chapter 1, Article 5 of the Government Code (§§ 53090 – 53097.7)

Subdivision (a) of section 53090 defines a local agency as any “an agency of the state for the local performance of governmental or proprietary function within limited boundaries.”

Subdivision (e) of section 53091 provides as follows:

Zoning ordinances of a county or city shall not apply to the location or construction of facilities ... for the production or generation of electrical energy, facilities that are subject to Section 12808.5 of the Public Utilities Code [certain transmission and distribution lines of a municipal utility district] , or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts. Zoning ordinances of a county or city shall apply to the location or construction of facilities for the storage or transmission of electrical energy by a local agency, if the zoning ordinances make provision for those facilities.

Sections 53090 and 53091 are general laws that limit the County’s inherent police power to enact and apply its own land use regulations to certain types of electrical facilities of local

agencies, such as SMUD. The County has previously submitted comments regarding its land use authority to regulate certain elements of the Project, and we will not repeat those comments here. Instead, our comments here focus on the legal relationship between SMUD and the ALUC and how those two agencies of the state are required to interact.

As stated above, section 53090 defines SMUD as an agency of the state created for the performance of proprietary functions within limited boundaries. The ALUC is an administrative agency within the executive branch of state government. The ALUC is organized and operates pursuant to its governing statutes, referred to herein as the ALUC Law. As an administrative agency within the executive branch of state government, and consistent with the separation-of-powers doctrine, the ALUC is empowered by its governing statutes to exercise limited quasi-legislative and quasi-judicial powers within the boundaries of its geographic and subject-matter jurisdiction, subject to judicial review. (See *Bixby v. Pierno* (1971) 4 Cal.3d 130, 142.)

In some instances, a state administrative agency's governing statute allows or requires the state agency's functions to be performed by city or county government, or by specified officials or departments within city or county government. For example, the state Department of Housing and Community Development has exclusive jurisdiction to regulate mobilehome parks under the Mobilehome Parks Act, but HCD may delegate its statutory enforcement responsibilities to city and county governments. (Health & Saf. Code, § 18300.) In such cases, the city or county government acts as an arm of state government, pursuant to its state-delegated authority instead of its inherent police power authority. (*No Wetlands Landfill Expansion v. County of Marin* (2012) 204 Cal.App.4th 573 [permit decision by local enforcement agency within county government, acting pursuant to delegated authority, was appealable to state administrative agency rather than to county's board of supervisors].)

The ALUC has authority to impose and collect fees for the performance of those functions that the Legislature has assigned to it through the ALUC Law, but the County has an ongoing statutorily-mandated financial responsibility to staff, equip, and quarter the ALUC. (Pub. Util. Code, § 21671.5, subd. (c) & (f)). In addition, the County bears financial responsibility for the usual and necessary operating expenses of the ALUC. (*Ibid.*) This general County responsibility to pay for the usual and necessary operating expenses of the ALUC – an agency of the state created for the performance of governmental functions within limited boundaries – takes on heightened significance in light of the Court of Appeal's recent decision in *San Luis Obispo Local Agency Formation Commission v. City of Pismo Beach* (3/3/2021) 61 Cal.App.5th 595 (review den.).

In that case, the Court of Appeal held that an agency created pursuant to statute did not have inherent or implied statutory authority to include costs for its post-hearing expenses in its

fee structure. Thus, the County is financially responsible for the ALUC's expenses of reviewing SMUD's proposed findings overruling the ALUC's determination of inconsistency. More generally, the County and ultimately Solano County taxpayers are financially responsible to defend the ALUC's legitimate and necessary assertions of its jurisdiction when the ALUC is unable to do so itself with revenues from its limited, statutorily authorized fee structure.

SMUD's repeated claims that it and the Project are somehow exempt from the ALUC Law and the ALUC's project review process is an implied allegation that the County has misspent local property tax revenues by funding the ALUC's efforts during this process. Although this allegation of fiscal profligacy on the part of the County is merely implied by SMUD's jurisdictional arguments rather than stated explicitly in SMUD's FEIR or other documents, it is an allegation that the County rejects vehemently.

B. The ALUC is a Regulatory Agency

The State Aeronautics Act was added to the Public Utilities Code in 1953. (Stat. 1953, c. 151, p. 927, § 1.) Section 21002 states that the purpose of the Act is "to further and protect the public interest in aeronautics and aeronautical progress" by various means, including the following as described in subdivision (d) of that section:

Granting to a state agency powers, and imposing upon it duties, so that the state may properly perform its functions relative to aeronautics and effectively exercise its jurisdiction over persons and property, assist in the development of a statewide system of airports, encourage the flow of private capital into aviation facilities, and cooperate with and assist political subdivisions and others engaged in aeronautics in the development and encouragement of aeronautics.

The ALUC Law was originally enacted and made part of the State Aeronautics Act in 1967, creating airport land use commissions as locally-based state agencies with the powers and duties described in the ALUC Law. As originally enacted, section 21674 of the ALUC Law gave an airport land use commission only an advisory function limited to height restrictions for building near airports and land uses surround airports, and made clear that a commission had no "jurisdiction over any matters related to zoning or land use authority of any city or county." (Stats. 1967, c. 852, p. 2290.)

In 1970, the Legislature added section 21675 to the ALUC Law, directing commissions to "formulate a comprehensive land use plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission." (Stat. 1970, c. 1182, p. 2090, § 5.) That same legislation also added section 21676, which

directed “each public agency having representation on the commission [to] assist in the development of an area plan” and to file that area plan with the commission for its approval. That new section conferred additional project review authority on commissions, as follows:

If in the determination of the commission, an action or regulation of *any* public agency within the boundaries of the area plan is inconsistent with the commission plan, then the commission shall hold a hearing to determine whether or not the proposed action is in the best interests of the airport and the adjacent area. If it is determined that the action would be harmful, then the public agency shall have another hearing to reconsider its action. The public agency proposing the action or regulation, however, may overrule the commission after such hearing by a four-fifths vote of its governing body.

(Stat. 1970, c. 1182, p. 2090, § 6 (emphasis added).)

The 1970 amendments to the ALUC Law transformed airport land use commissions from advisory bodies offering local agencies nonbinding advice into semi-regulatory bodies whose recommendations on matters within its geographic and subject-matter jurisdiction carried a strong presumption of correctness. As stated by the Supreme Court in its *Muzzy Ranch* decision, “Pursuant to the statutory scheme authorizing it, the [commission’s airport land use compatibility plan] carries significant, binding regulatory consequences for local government.” (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 384.)

The standard set by the Supreme County in its *Muzzy Ranch* decision is that a government agency is not acting in a regulatory capacity, and is not required to comply with CEQA, when it is merely providing advice within its area of expertise to another agency. On the other hand, if a governmental agency provides “advice” that carries with it such a strong presumption of authoritative correctness that is effectively binding on another agency unless overridden by a super-majority vote of that other agency, then the giving of that “advice” is the legal equivalent of adoption of a regulation. *Muzzy Ranch* holds that an airport land use commission’s adoption of an airport land use compatibility plan (LUCP) is a project subject to CEQA and that a commission must comply with CEQA when adopting such a plan. After the commission has adopted its LUCP in compliance with law, the commission’s review of projects proposed by cities, the county, and other local agencies for consistency with that adopted LUCP is an implementing action within the scope of the commission’s prior CEQA compliance and no further CEQA action is required by the commission. Instead, the city, county, or other local agency proposing the project is responsible for CEQA compliance on its project.

C. The ALUC has Jurisdiction over all Local Agencies, not just Cities and the County

In 1982, the Legislature amended section 21674 to read, in part, as follows:

The commission has the following powers and duties, subject to the limitation upon its jurisdiction set forth in 21676:

(a) to assist *local agencies* in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.

...

(d) To review the plans, regulations, *and other actions of local agencies* and airport operators pursuant to Section 21676.

(Stat. 1982, c. 1041, p. 3796, § 7 (emphasis added).) That 1982 legislation also made amendments to the commission's section 21676 review process. The Legislative Counsel's summary of the bill explained its effect as follows:

Existing law empowers commissions to achieve by zoning, compatible land uses around airports.

This bill would revise this provision to, instead, authorize commissions to ensure that local agencies achieve compatible land uses around airports, to coordinate planning efforts, and to review any land use plan submitted to it for comments on compatibility.

(Legis. Counsel's Dig., Assem. Bill No. 2920 (1981-1982 Reg. Sess.) 6 Stat. 1982, Summary Dig., p. 349.)

In 2000, as part of the Local Government Omnibus Act of 2000 (SB 1350), the Legislature added subdivision (f) to section 21670 of the ALUC Law, which declares that it is the intent of the Legislature that special districts are included among the local agencies subject to airport land use laws and other requirements of the ALUC Law. (Stat. 2000, c. 506, p. 3549, § 36.) The final Senate Floor Analysis of that bill explained the addition of subdivision (f) to section 21670 as follows:

Existing law requires an airport land use commission (ALUC) to adopt a comprehensive land use plan (CLUP) for every public use airport in that county (Public Utilities Code 21675). Cities and counties must conform their general plans to CLUP (21676). City councils and county boards of supervisors can overrule a CLUP on a 2/3-vote (21676.5). The Napa ALUC learned that the Napa Sanitation District had already started building two sludge digesters at the northern approach to the Napa Airport. The structures were

80 feet tall in an area where the CLUP and local planning standards set the maximum height at 35-40 feet. Pilots believed that the district's tall structures were hazards to navigation. The district asserted that it was not subject to the CLUP. After conversations with the ALUC, the district continued with its construction project but agreed to install lights and use bright colors. To avoid similar conflicts in the future, Napa officials want the Legislature to make it clear that special districts - not just cities and counties - must follow a CLUP. This provision is part of AB 2940, an omnibus bill authored by the Assembly Local Government Committee. Because AB 2940 did not reach the Assembly Floor, the Assembly Committee has requested this amendment to this bill. This bill declares the Legislature's intent that special districts are subject to the ALUC statute.

In 2003, the Legislature amended subdivision (f) to state explicitly that it intended for school districts and community college districts to be included within the umbrella of local agencies subject to the ALUC law. (Stat. 2003, c. 351, p. 2770, § 1.) In its summary digest of that bill (AB 332), the Legislative Counsel advised the Legislature regarding then-existing law as follows:

Under the State Aeronautics Act, the general plan or special plans of a local agency, including a city, county, or special district, are required to be consistent with the airport land use compatibility plan and each local agency whose general plan or plans includes areas covered by an airport land use compatibility plan is required to submit a copy of its plan, any amendment, any zoning ordinance, and any building regulation, to the airport land use commission. If the plan, amendment, zoning ordinance, or building regulation is inconsistent with the airport land use compatibility plan, the airport land use commission is required to notify the local agency and the local agency is required to have a hearing to reconsider its plan or action.

Assembly Bill 332 of 2003 also made amendments to sections 21676 and 21676.5 but did not alter the existing language in those two sections regarding the requirement for all local agencies to submit their "general plans" to the commission for consistency review and the authority of a commission to review a local agency's individual projects in the absence of a consistency determination regarding the local agency's plan. The term "general plan" is defined in section 65302 of the Government Code and refers to a type of land use planning document that only cities and counties are required to prepare. It is unfortunate that the Legislature did not amend sections 21676 and 21676.5, either in 2000 when it added subdivision (f) to section 21670 or in 2003 when it amended that subdivision, to clearly specify which plans it intended that local agencies other than cities and counties were to submit to the commissions. However, given that the Legislative Counsel advised the Legislature in 2003 that existing law already required local agencies other than cities and counties to submit their "special plans" to commissions for

consistency review and determination, it is understandable why the Legislature thought no clarifying amendments to sections 21676 and 21676.5 were required. Legislative intent must be interpreted based on the entire statutory scheme as well as the advice given to the Legislature by its own Legislative Counsel regarding the meaning of existing law. A copy of Chapter 351, including the Legislative Counsel's summary of AB 332, is attached for the Board's convenience.

D. The ALUC has Jurisdiction over Development in the Vicinity of both Public Airports and Military Airports

In 1973, almost a year to the day after the Farrell's Ice Cream Parlor disaster, the Legislature enacted urgency legislation amending section 21675 to authorize each commission to "include within its plan ... the area within the jurisdiction of the commission surrounding any federal military airport." (Stat. 1973, c. 844, p. 1510, § 1.) The Legislature explained both the need for this amendment and its urgency as follows:

This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting such necessity are:

Because the areas surrounding federal military airports are presently not subject to the planning jurisdiction of airport land use commissions, there are many instances of unregulated construction in such areas presenting serious safety hazards both to air navigation and to the occupants of the structures. In order to commence regulation of the construction of such incompatible facilities at the soonest possible time in the interests of public safety, it is necessary that this act go into immediate effect.

(Stat. 1973, c. 845, p. 1511, § 2.)

In 2002, the Legislature converted the statutory authorization for a commission to include military airports in its LUCP into a legal mandate. (Stat. 2002, c. 971, p. 6084, § 7.) In an uncodified section of that legislation, the Legislature made the following findings and declarations:

(a) The Legislature finds and declares all of the following:

(1) California contains an integrated system of military installations and special use airspace, connected by low-level flight corridors, that provides a key foundation for our nation's security. This integrated system provides for the training of military personnel, as well as the research, development, testing, and evaluation of military hardware.

(2) The military is a key component of California's economy comprising direct economic expenditures of over \$29,800,000,000 each year, making the military larger than other economic sectors of the state, including agriculture, and the military represented over 263,000 working adults in the 2000–01 fiscal year.

(3) The federal Department of Defense's research, development, test, and evaluation programs, which included \$3,900,000,000 in direct 2000–01 fiscal year contracts in California, make an important contribution to maintaining the state's lead in technology development.

(b) The Legislature therefore finds that the protection of this integrated system of military installations and special use airspace is in the public interest.

(Stat. 2002, c. 971, p. 6071, § 1.)

E. CEQA requires that a Project's Potential Impacts on Airports and Related Airspace be considered in the EIR or Negative Declaration prepared for the Project

In 1994, the Legislature amended CEQA by adding section 21096, which requires a lead agency to utilize the adopted airport land use compatibility plan, or the CalTrans Airport Land Use Planning Handbook if no such airport plan has been adopted, when preparing its CEQA document evaluating the potential environmental impacts of a proposed project in the vicinity of an airport. (Stat. 1994, c. 438, p. 2393, § 1.) The final Senate Floor Analysis described the arguments in support of the bill (SB 1453) as follows:

The sponsor of this bill, the California Pilots Association, claims that the existing CEQA procedure for preparation of an EIR does not always address the special airport operational elements of "safety" and "noise" because planners and consultants generally do not have adequate technical guidance to recognize such impacts.

The author of this bill believes that this measure will provide lead agencies the proper guidance in analyzing impacts related to airport use.

The bill passed in the Senate on a vote of 77-0 and passed in the Assembly on consent. The Legislature's unanimous vote is an unqualified endorsement of the statements of intent made by the bill's sponsor and author, but it does far more than that: the Legislature's enactment of section 21096 is a clear declaration of legislative intent that a project's potential impacts on airport operations and related airspace are environmental impacts that need to be discussed and evaluated by a lead agency through the CEQA process. If a lead agency is proposing a project at a location within an airport influence area for which the airport land use commission has adopted an airport land use compatibility plan, the lead agency's CEQA process and the commission's project review process are joined at the hip unless the commission has already made a finding

that the lead agency's general plan or similar planning document – referred to as a “special plan” by the Legislative Counsel – is consistent with the commission's adopted airport land use compatibility plan.

Subdivisions (d)(1)(B) and (C) of section 15124 of the CEQA Guidelines require that an EIR include the following information:

- A list of permits and other approvals required to implement the project.
- A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies. To the fullest extent possible, the lead agency should integrate CEQA review with these related environmental review and consultation requirements.

Because the ALUC is a regulatory agency with jurisdiction to evaluate and determine the Project's consistency with its adopted LUCP, information regarding the legally required ALUC consultation and consistency determination process is required to be included in the FEIR. The information provided in the Solano 4 Wind Project FEIR must accurately reflect SMUD's understanding of the ALUC process. When a lead agency certifies an EIR, it is certifying that its EIR has been completed in compliance with CEQA and that the information presented in the EIR reflects the lead agency's independent judgment and analysis. (CEQA Guidelines, § 15090.)

F. SMUD has complied with the ALUC Process in Form only and not in Substance

In its Notice of Preparation, Draft EIR, Final EIR, and proposed decision and findings of override, SMUD has consistently maintained that the ALUC's role with respect to the Project is advisory only and that neither SMUD nor the Project is subject to the ALUC's jurisdiction. Despite these repeated claims, SMUD has gone through the motions of submitting its project proposal to the ALUC for a consistency determination and, when the ALUC determined the Project to be inconsistent with its adopted LUCP, proposing to override the ALUC's determination. The disconnect between SMUD's words and its deeds demonstrate that SMUD engaged in the ALUC process in form only and not in substance.

“He who takes the benefit must bear the burden.” (Civ. Code, § 3521.) In the land use context, a landowner may either accept both the benefits and the burdens of a government agency's action on his project proposal or he may challenge that agency's action, but he may not do both. (*Lynch v. California Coastal Com.* (2017) 3 Cal.5th 470, 476.) As explained above, the ALUC has jurisdiction to review and make its determination regarding the Project's consistency with the ALUC's adopted LUCP. SMUD derives an obvious legal benefit from compliance with the ALUC Law and engagement in the ALUC process, but SMUD's engagement must be honest

and meaningful in order for these legal benefits to accrue. SMUD cannot accept these legal benefits while at the same time loudly and repeatedly challenging the ALUC's jurisdiction over the Project, particularly when these challenges are made in its FEIR and override findings.

In February 2019, the ALUC submitted comments on the Notice of Preparation for the Project. As part of these comments, the ALUC asserted its jurisdiction to review and make a consistency determination on the Project. By letter dated April 26, 2019, SMUD's outside counsel responded to this assertion of ALUC jurisdiction, stating in part as follows:

SMUD, as a local agency, can overrule the ALUC by holding a hearing, making findings that the action is consistent with the purposes of the [State Aeronautics Act], and obtaining a two-thirds vote of its governing body.

The choice of the word "obtaining" in this statement is troubling because it suggests that SMUD as a local agency is something separate and distinct from its governing body, and that the interests and objectives of SMUD the district may not always be in perfect alignment with those of SMUD's governing body.

We draw the Board's attention to this statement not to criticize your staff or your outside counsel but to highlight the legal significance of a decision by a lead agency's governing board to certify an EIR that has been prepared by the agency's staff and consultants. As SMUD's governing body, your certification of the EIR means that all of the information contained in the FEIR, including the claims that the ALUC lacks jurisdiction over the Project, reflect SMUD's independent judgment and analysis. When you certify the FEIR, you are not merely expressing an opinion that the process arguments made by the FEIR's preparers sound plausible, you are adopting those arguments as the official position of SMUD. If there is anything in the FEIR that you, as SMUD's governing body, do not fully agree with, you have both the power and the duty to send that document back to your staff with directions to make appropriate revisions. Once you certify it, it becomes SMUD's official document, warts and all.

With respect to the statements made in the FEIR regarding the ALUC's jurisdiction over the project, or lack thereof, we urge the Board to direct its staff to excise all incorrect statements from that documents. However, proper compliance with the ALUC Law requires that SMUD make substantive corrections to how it has proceeded during the CEQA and ALUC processes rather than simply making editorial changes to the FEIR document at the end of that process. For that reason, we urge the Board to direct its staff to reengage in the ALUC process, this time in an honest and meaningful manner.

II.
THE EIR FAILS TO PROPERLY EVALUATE
THE SIGNIFICANCE OF THE PROJECT'S IMPACTS
TO TRAVIS AIR FORCE BASE AND RELATED AIRSPACE

The FEIR purportedly evaluates potential impacts to Travis AFB and air traffic in the surrounding airspace as Impact 3.7-3: Safety hazard to air traffic, in which it describes these potential impacts as follows:

The project site lies within the planning boundary of the Travis AFB LUCP, which contains policies designed to promote land use compatibility with airport operations. Placement of WTGs have the potential to intrude into navigable airspace, thereby increasing the risk of aircraft collision, or causing interference with radar signals used by air traffic control. Therefore, this impact would be **potentially significant**.

Intrusions into navigable airspace and interference with air traffic control radar signals are identified in the EIR as two distinct types of potential impacts on air traffic safety. However, after identifying both types of air traffic safety impact as potentially significant unless mitigated, the FEIR references various FAA documents and then fails to evaluate the potential impact on air traffic control radar any further or to recommend mitigation measures that could reduce that potentially significant impact to a less-than-significant level. The FAA documents do not suggest or impose mitigation measures on the Project related to the Project's potentially significant impacts on radar, so reference to those documents does not provide evidence that the impact identified in the FEIR as potentially significant will be reduced to a less-than-significant level after mitigation is imposed.

An EIR is intended to be a technical document, not a legal brief. It must provide an evidence-based factual analysis of the project's potential direct and indirect impacts on the physical environment, assess the significance of those potential impacts, and recommend mitigation measures, to the extent possible, that would reduce the severity of potentially significant impacts to a less-than-significant level. Whether SMUD *may* overrule the ALUC's determination of inconsistency is a question of law; whether the Project *will* potentially impact Travis AFB and the surrounding airspace is a question of fact. The FEIR's discussion of Impacts 3.7-3 and 3.9-2 focuses on the legal question and glosses over the factual one. Specifically, the discussion of Impact 3.9-2 acknowledges both that the ALUC's adopted LUCP for Travis AFB is "a plan ... adopted to avoid or mitigate an environmental effect" and that the ALUC would likely find the Project to be inconsistent with that adopted plan, but concludes that any potential impact of the Project on the airport environment would be less-than-significant because "SMUD,

as a local agency, can overrule the ALUC determination consistent with the State Aeronautics Act provisions.”

“A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.” (CEQA Guidelines, § 15064.7, subd. (a).) Although section 21096 of CEQA requires that the FEIR evaluate the potential impacts to Tavis AFB using the ALUC’s adopted LUCP, the FEIR describes the thresholds of significance used for determining whether such impacts would be significant as follows:

- Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to hazards and hazardous materials if it would ... for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
- Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to land use if it would ... cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The Appendix G checklist is intended to be used by lead agencies as a list of questions to be asked when preparing an Initial Study to determine if a project may have a significant effect on the environment. (CEQA Guidelines, § 15063.) It is not intended to serve as a list of thresholds of significance. (See California Airport Land Use Planning Handbook (CalTrans Division of Aeronautics, 2011), p. I-2, note 9.) Instead, section 15064.7, subdivisions (b) and (c) of the CEQA Guidelines addresses thresholds of significance as follows:

Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. Thresholds of significance to be adopted for general use as part of the lead agency’s environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. Lead agencies may also use thresholds on a case-by-case basis as provided in Section 15064(b)(2).

When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies

or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

Despite identifying the Appendix G checklist language as the thresholds of significance being used in the FEIR for evaluating the Project's impacts on Travis AFB and airport operations, the FEIR appears to rely instead on Determinations of No Hazard (DNHs) from the FAA as thresholds of significance. This is an improper adoption and use of the FAA's DNHs. Subdivision (d) of the above-cited CEQA Guideline section provides, in part, as follows:

Any public agency may adopt or use an environmental standard as a threshold of significance. In adopting or using an environmental standard as a threshold of significance, a public agency shall explain how the particular requirements of that environmental standard reduce project impacts, including cumulative impacts, to a level that is less than significant, and why the environmental standard is relevant to the analysis of the project under consideration. For the purposes of this subdivision, an "environmental standard" is a rule of general application that is adopted by a public agency through a public review process and that is all of the following:

- (1) a quantitative, qualitative or performance requirement found in an ordinance, resolution, rule, regulation, order, plan or other environmental requirement;
- (2) adopted for the purpose of environmental protection;
- (3) addresses the environmental effect caused by the project; and,
- (4) applies to the project under review.

The FAA DNHs do not satisfy these criteria, and the FEIR's de facto reliance on the DNHs as thresholds of significance does not satisfy the requirements of this subdivision.

In addition, the FEIR fails to evaluate the economic costs of upgrading, supplementing, or relocating the Travis radar so that its capabilities are not further degraded due to the Project. While the economic effects of a project, by themselves, are not to be treated as significant effects on the environment for purposes of CEQA, economic effects can be used to determine the significance of physical changes caused by the project. (CEQA Guidelines, § 15131.) As described above, impacts of the Project on airport operations at Travis AFB, including impacts on its air traffic control radar capabilities within the associated airspace that both military and civilian aircraft normally traverse, are to be evaluated as impacts to the physical environment for purposes of CEQA. When evaluating the potential significance of these impacts, the economic costs of these impacts must be considered.

In a letter dated January 11, 2021, which is included in Appendix B of the July 2021 Final EIR, Col. Simmons said that the project would have a negative impact on Travis AFB

operations. Although he characterized this negative impact as “minimal,” he did not characterize it as insignificant, negligible, acceptable, or cost-free. Col. Simmons’ letter does not provide any information regarding what remedial measures, if any, Travis will be required to undertake to counter the negative impact on base operations caused by the Project, or what the costs of those remedial measures might be. For that reason, the letter does not provide sufficient information for the FEIR to draw any conclusions regarding the potential significance of this impact.

III. THE EIR FAILS TO EVALUATE A REASONABLE RANGE OF PROJECT ALTERNATIVES

“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” (CEQA Guidelines, § 15126.6, subd. (a); see also Pub. Res. Code, § 21002.) This EIR does neither.

As described above, Impact 3.7-3 identifies the impacts caused by the Project to radar signals used by air traffic control as potentially significant but the FEIR fails to recommend any mitigation measures to reduce that potentially significant impact to a less-than-significant level. Even if mitigation to reduce this impact to a less-than-significant level had been identified and recommended, the FEIR would still be required to discuss alternatives that could lessen or avoid this type of impact. (*Laurel Heights Improvement Ass’n. v. Regents of Univ. of Cal.* 1988) 47 Cal.3d 376.)

When a public agency proposes to build a new facility, the key policy question often is not whether the project should be built, but where. The ability to acquire property by eminent domain and access to public lands may give public agencies a broad range or feasible siting options. An evaluation of alternative sites in such situations is thus often a necessary component of an adequate environmental analysis. Major public agency projects that will cause widespread regional impacts might also trigger review of alternative sites. [¶] On the other hand, in particular situations it should be appropriate for public agencies to determine that analysis of alternative sites is not appropriate.

(Kostka & Zischke, Practice Under the California Environmental Quality Act (2nd ed Cal CEB), § 15.27 [citations omitted].)

We agree with the above-cited treatise that an alternative site analysis is not required or appropriate for all public agency projects, but we also agree that when a public agency determines an alternative site analysis is not appropriate for a particular project, it should explain the reasons for its determination in the EIR. This FEIR states that there are limited locations in the state for wind energy development and that project development at the proposed location would be relatively cheaper than development elsewhere because there are already eight separate commercial wind energy projects in the vicinity. Based on these two facts, the FEIR concludes that alternative sites are not feasible; the FEIR does not evaluate the matter further.

“Feasible” is defined in section 15364 of the CEQA Guidelines as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” The fact that suitable development sites are in short supply and that project development costs would be relatively higher at an alternative location does not, by itself, render alternative development sites infeasible.

When preparing its EIR, the lead agency “must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.” (CEQA Guidelines, § 15126.6, subd. (a).) The discussion of alternative in an EIR “shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” (CEQA Guidelines, § 15126.6, subd. (b).) “The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency’s determination.” (CEQA Guidelines, § 15126.6, subd. (c).)

The objectives of this Project, as identified in the FEIR, are as follows:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity, and reduce SMUD’s exposure to price volatility associated with electricity and natural gas.
- Assist SMUD in achieving the Board of Directors’ directive of using dependable renewable resources to meet SMUD’s renewable portfolio standards (RPS) obligations. This goal is consistent with Senate Bill 100, which was enacted in 2018.
- Develop an economically feasible wind project that will deliver a reliable supply of up to 91 MW of electrical capacity at the point of interconnection with the grid managed by the California Independent System Operator (CAISO).
- Accommodate the long-term viability of agricultural use within the Montezuma Hills.

The FEIR states, “Various technologies are available to produce renewable energy resources, including solar, wind, and nuclear energy.” Chapter 6 of the FEIR presents a one-paragraph discussion of nuclear energy as a project alternative, concluding not that such an alternative would be infeasible but that it “would likely result in greater impacts compared to the proposed project.” We do not disagree with this conclusion and would also stipulate that nuclear energy is an infeasible option for SMUD, especially given its history with Rancho Seco.

Although the FEIR identifies solar as an available renewable energy technology, it says nothing further about that energy-production technology as a project alternative, either at the project site or elsewhere. Unlike wind technology, we are not aware of solar having any potential to negatively impact air traffic control radar, which makes solar worthy of consideration as a project alternative that would avoid a potentially significant impact of the proposed project identified in the FEIR. In addition, a solar project would clearly meet the first and second project objectives listed in the FEIR. The third objective, however, raises red flags: Why is wind preferable to solar as a renewable energy technology? The EIR does not address this. Why is the third objective laser-focused on 91MW rather than something more general, such as 90MW or 100MW? The EIR does not address this either.

The lack of any such explanation for imposing narrowly-focused project objectives renders the EIR’s discussion of project alternative inadequate and casts a cloud over the FEIR’s description of project objectives, seemingly demonstrating that those objectives were carefully tailored to describe only the proposed project and eliminate all other renewable energy project options from serious consideration. The purpose of an EIR is to allow the lead agency and the public to evaluate the potential environmental impacts of a proposed project *before* any project approval decision is made. An overly-constrained description of project objectives in an EIR strongly implies that the EIR has been prepared only to serve as a post hoc rationalization of a project approval decision already made, either by the lead agency’s governing board or its staff.

We ask that the SMUD Board of Directors take the following actions regarding Item 9 on your August 19, 2021, agenda:

- Decline to certify the EIR
- Direct staff to revise the EIR in the following ways:
 - Properly describe the ALUC’s jurisdiction and its role
 - Properly evaluate the impacts to Travis AFB and its ATC radar
 - Evaluate off-site project alternatives or explain why off-site alternatives are infeasible
 - Evaluate an on-site solar alternative or explain why solar is an infeasible renewable energy technology for this site

- Revise the project objectives, particularly the third-listed objective, to allow an honest and open consideration of project alternatives
- Direct staff to recirculate the revised EIR for public comment in accordance with section 15088.5 of the CEQA Guidelines
- Decline to adopt findings overriding the determination of the ALUC
- Direct staff to acknowledge the ALUC's jurisdiction over the project, and to engage in honest and meaningful consultation with the ALUC

These actions are what the law requires and what SMUD's ratepayers and investors should reasonably expect from SMUD and this Board.

Sincerely,



James W. Laughlin
Deputy County Counsel

cc: Board of Supervisors
Birgitta Corsello, County Administrator
Bill Seiden, Chair, Solano County ALUC
Joseph P. Carroll, CalTrans Legal Division

Attachment: Chapter 351 (2003)



AB-332 Airports: land use commissions. (2003-2004)

SHARE THIS:



Assembly Bill No. 332

CHAPTER 351

An act to amend Sections 21670, 21674.7, 21676, 21676.5, 21677, and 21678 of the Public Utilities Code, relating to airports.

[Filed with Secretary of State September 12, 2003. Approved by Governor September 11, 2003.]

LEGISLATIVE COUNSEL'S DIGEST

AB 332, Mullin. Airports: land use commissions.

The State Aeronautics Act governs the creation and operation of airports in this state. Under the State Aeronautics Act, each county in which there is an airport served by a scheduled airline and each county with an airport operated for the benefit of the general public, with certain exceptions, is required to establish an airport land use commission, to designate a body to carry out the responsibilities of a commission, or to contract with the Department of Transportation to carry out the responsibilities of a commission. The commission is required to formulate a comprehensive land use compatibility plan to provide for the orderly growth of the airport and the area surrounding the airport within the jurisdiction of the commission, and safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission is required to submit a copy of the comprehensive land use compatibility plan to the Division of Aeronautics of the department and the division is required to notify the airport land use commission of any omission in the plan of required matter.

Under the State Aeronautics Act, the general plan or special plans of a local agency, including a city, county, or special district, are required to be consistent with the airport land use compatibility plan and each local agency whose general plan or plans includes areas covered by an airport land use compatibility plan is required to submit a copy of its plan, any amendment, any zoning ordinance, and any building regulation, to the airport land use commission. If the plan, amendment, zoning ordinance, or building regulation is inconsistent with the airport land use compatibility plan, the airport land use commission is required to notify the local agency and the local agency is required to have a hearing to reconsider its plan or action. A public agency owning any airport within the boundaries of an airport land use compatibility plan may overrule an airport land use commission's action or recommendation affecting an airport within the jurisdiction of that public agency, after a hearing, by a $\frac{2}{3}$ vote of its governing body, except the County of Marin, which may overrule by a majority vote of its governing body, and the making of specific findings that the proposed action is consistent with the purposes of protecting public health, safety, and welfare, minimizing the public's exposure to excessive noise, and minimizing safety hazards within areas around the public airport.

This bill would declare the intent of the Legislature to discourage incompatible land uses near airports and to clarify that school districts and community college districts are also subject to a comprehensive land use compatibility plan. The bill would provide that a local or public agency may propose to overrule an airport land use commission's action or recommendation affecting an airport within the jurisdiction of that public agency after

a hearing, by a $\frac{2}{3}$ vote of its governing body, except the County of Marin, which may overrule by a majority vote of its governing body, if it makes specific findings that the proposed action is consistent with the purposes of protecting public health, safety, and welfare, minimizing the public's exposure to excessive noise, and minimizing safety hazards within areas around the public airport. The bill would require the local or public agency governing body to provide the airport land use commission and the division with the proposed decision and findings at least 45 days prior to the decision to overrule the commission and would authorize the commission or the division to make advisory comments within 30 days of receiving the proposed decision and findings. The bill would require that the advisory comments from the commission or division be included in the final record of any final decision to overrule the commission.

By requiring local agency governing boards to provide notice to the division and commission and incorporate department and commission comments in the public record, the bill would impose a state-mandated local program. The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement, including the creation of a State Mandates Claims Fund to pay the costs of mandates that do not exceed \$1,000,000 statewide and other procedures for claims whose statewide costs exceed \$1,000,000.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 21670 of the Public Utilities Code is amended to read:

21670. (a) The Legislature hereby finds and declares that:

(1) It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.

(2) It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

(b) In order to achieve the purposes of this article, every county in which there is located an airport which is served by a scheduled airline shall establish an airport land use commission. Every county, in which there is located an airport which is not served by a scheduled airline, but is operated for the benefit of the general public, shall establish an airport land use commission, except that the board of supervisors of the county may, after consultation with the appropriate airport operators and affected local entities and after a public hearing, adopt a resolution finding that there are no noise, public safety, or land use issues affecting any airport in the county which require the creation of a commission and declaring the county exempt from that requirement. The board shall, in this event, transmit a copy of the resolution to the Director of Transportation. For purposes of this section, "commission" means an airport land use commission. Each commission shall consist of seven members to be selected as follows:

(1) Two representing the cities in the county, appointed by a city selection committee comprised of the mayors of all the cities within that county, except that if there are any cities contiguous or adjacent to the qualifying airport, at least one representative shall be appointed therefrom. If there are no cities within a county, the number of representatives provided for by paragraphs (2) and (3) shall each be increased by one.

(2) Two representing the county, appointed by the board of supervisors.

(3) Two having expertise in aviation, appointed by a selection committee comprised of the managers of all of the public airports within that county.

(4) One representing the general public, appointed by the other six members of the commission.

(c) Public officers, whether elected or appointed, may be appointed and serve as members of the commission during their terms of public office.

(d) Each member shall promptly appoint a single proxy to represent him or her in commission affairs and to vote on all matters when the member is not in attendance. The proxy shall be designated in a signed written instrument which shall be kept on file at the commission offices, and the proxy shall serve at the pleasure of the appointing member. A vacancy in the office of proxy shall be filled promptly by appointment of a new proxy.

(e) A person having an "expertise in aviation" means a person who, by way of education, training, business, experience, vocation, or avocation has acquired and possesses particular knowledge of, and familiarity with, the function, operation, and role of airports, or is an elected official of a local agency which owns or operates an airport.

(f) It is the intent of the Legislature to clarify that, for the purposes of this article, that special districts, school districts, and community college districts are included among the local agencies that are subject to airport land use laws and other requirements of this article.

SEC. 2. Section 21674.7 of the Public Utilities Code is amended to read:

21674.7. (a) An airport land use commission that formulates, adopts, or amends an airport land use compatibility plan shall be guided by information prepared and updated pursuant to Section 21674.5 and referred to as the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation.

(b) It is the intent of the Legislature to discourage incompatible land uses near existing airports. Therefore, prior to granting permits for the renovation or remodeling of an existing building, structure, or facility, and before the construction of a new building, it is the intent of the Legislature that local agencies shall be guided by the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, to the extent that the criteria has been incorporated into the plan prepared by a commission pursuant to Section 21675. This subdivision does not limit the jurisdiction of a commission as established by this article. This subdivision does not limit the authority of local agencies to overrule commission actions or recommendations pursuant to Sections 21676, 21676.5, or 21677.

SEC. 3. Section 21676 of the Public Utilities Code is amended to read:

21676. (a) Each local agency whose general plan includes areas covered by an airport land use compatibility plan shall, by July 1, 1983, submit a copy of its plan or specific plans to the airport land use commission. The commission shall determine by August 31, 1983, whether the plan or plans are consistent or inconsistent with the airport land use compatibility plan. If the plan or plans are inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall have another hearing to reconsider its airport land use compatibility plans. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not

available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the public record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(c) Each public agency owning any airport within the boundaries of an airport land use compatibility plan shall, prior to modification of its airport master plan, refer any proposed change to the airport land use commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The public agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(d) Each commission determination pursuant to subdivision (b) or (c) shall be made within 60 days from the date of referral of the proposed action. If a commission fails to make the determination within that period, the proposed action shall be deemed consistent with the airport land use compatibility plan.

SEC. 4. Section 21676.5 of the Public Utilities Code is amended to read:

21676.5. (a) If the commission finds that a local agency has not revised its general plan or specific plan or overruled the commission by a two-thirds vote of its governing body after making specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670, the commission may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. If, in the determination of the commission, an action, regulation, or permit of the local agency is inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall hold a hearing to reconsider its plan. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Whenever the local agency has revised its general plan or specific plan or has overruled the commission pursuant to subdivision (a), the proposed action of the local agency shall not be subject to further commission review, unless the commission and the local agency agree that individual projects shall be reviewed by the commission.

SEC. 5. Section 21677 of the Public Utilities Code is amended to read:

21677. Notwithstanding the two-thirds vote required by Section 21676, any public agency in the County of Marin may overrule the Marin County Airport Land Use Commission by a majority vote of its governing body. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the public record of the final decision to overrule the commission, which may be adopted by a majority vote of the governing body.

SEC. 6. Section 21678 of the Public Utilities Code is amended to read:

21678. With respect to a publicly owned airport that a public agency does not operate, if the public agency pursuant to Section 21676, 21676.5, or 21677 overrules a commission's action or recommendation, the operator of the airport shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to overrule the commission's action or recommendation.

SEC. 7. Notwithstanding Section 17610 of the Government Code, if the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code. If the statewide cost of the claim for reimbursement does not exceed one million dollars (\$1,000,000), reimbursement shall be made from the State Mandates Claims Fund.

From: [Mark Graham](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Board of Directors meeting, August 19, 2021
Date: Sunday, August 15, 2021 6:42:06 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

August 15, 2021

Board of Directors and staff,

Please place this in the record of this meeting. Public comments on items not on the agenda.

This is my first alternative recommendation for SMUD's 2022 and 2023 rates and charges, annotated.

SMUD should back out the 9.2% scalar that SMUD built into the original time of day (TOD) rates in 2017, plus all of the across the board rate increases that have increased that scalar up to about 10.7%, before applying the proposed 1.5% and 2.0% rate increases. This applies to the rates per kWh and the system infrastructure fixed charge (SIFC) for the rates and charges of all customer classes and categories to which the 9.2% scalar was added.

When I say back out I mean to multiply the current rates by a number that is less than 1 such that you will arrive at rates that you would have had if SMUD had never added in the 9.2% scalar in the first place. Such a calculation will reduce the current rates by something in the neighborhood of 9.2%, but not exactly that amount due to the mathematics of it. The 9.2% scalar plus all the subsequent across the board rate increases is currently "baked into" SMUD's rate and charges. It should not be.

The reason is that the current and proposed rates are taxes as defined in the California Constitution, Article XIII C, and SMUD never presented these rates and charges to the electorate nor received the approval of the electorate. General taxes cannot be imposed, extended or increased unless approved by a majority of the electorate. Special taxes may not be imposed, extended or increased unless approved by a 2/3 majority of the electorate. SMUD imposed these taxes in 2017 and extended and increased them in 2019. The proposed rates for 2022 and 2023 would extend and increase these taxes again.

My June 18, 2021 email, with all four (4) attachments, explain the issue in depth. I incorporate that email and those attachments into this alternative recommendation by this reference. One of those was the original rate design study referred to by NERA economic consulting in their letter in the CEO and GM Report and Recommendation on Rates and Services, which was Appendix I. That rate design study showed the line by line marginal cost components, and the sum of them, and then showed the addition of the 9.2% scalar which was intended to align the rates with SMUD's predetermined budget. The scalar is not one of your costs! And for that reason it should not be built into your rates. SMUD fails to understand the relationship between its costs and its rates.

As my analysis shows, the original time of day rates exceed SMUD's reasonable cost of providing electricity by slightly more than 9.2%. The definition of a tax is very broad, but a

charge or rate is not a tax if it qualifies for any of the seven exceptions. The only exception that could even possibly apply to SMUD rates and charges is e2, which is that the rates do not exceed SMUD's reasonable cost of providing electricity. But my analysis shows that they do exceed it by 9.2% at the time. The "scalar" that SMUD built in is not authorized by any statute or case law or any other legal authority. I even provided authority in terms of case law saying that, essentially, the government may not base its rates on predetermined budgets. That appears to be exactly what SMUD has done.

SMUD has failed to provide the following:

1. A law or court opinion that supports SMUD adding a 9.2% scalar into its rates, as it did in the original TOD rates approved in June, 2017;
2. A law or court opinion that supports SMUD setting rates based on "embedded cost" AND SMUD's analysis of its embedded cost, if there is one AND an explanation with a legal basis of how adding a scalar transforms the marginal cost into a so called embedded cost.

I ask SMUD to provide these items to the public (all of SMUD's customers, via the SMUD website with a special notice of this new information) as soon as possible, and no later than a few days prior to the rate hearing, scheduled for August 31, 2021, so that members of the public may have time to review and prepare comments on what you provide. One form in which SMUD can provide them is an errata to the [2021 CEO and General Manager's Report](#). I recommend that.

Please note that the 2020 Rate Costing Study, Planning, Pricing and Enterprise Performance, March 31, 2020 failed to provide justification for SMUD's proposed rates. Have you read it? Has any Board member actually read this rate costing study cover to cover? It is not included in the CEO and General Manager's Report, nor is it available on the SMUD website. You should make this available as an errata to the CEO and GM Report.

There are only a few sections of this study.

There is 1, Introduction and 2, Marginal cost components with Table 2.1 – Classification of Marginal Cost Components.

The Introduction says, "The Sacramento Municipal Utility District's (SMUD) proposed rate structure as defined by the Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services is influenced by SMUD's Marginal Cost. Marginal costs are the additional costs SMUD incurs to provide electric service to a new customer or a new load, or the savings expected from not serving that customer or load. These costs vary by the voltage at which electricity is delivered to the customer." The key here is that the rate study is all about marginal costs.

There is 3, Marginal Costs for Energy and Table 3.1.

There is 4, Demand-related Marginal Costs and Table 4.1 – Marginal T&D Capacity Costs

(2020\$).

There is 5, Customer related marginal costs and Figure 5.1 – Residential Customer-related Costs by Component.

There is 6, Other Cost Adders, in narrative form only with no table.

The units of measurement are not consistent. Some are \$/kWh, others are \$/kWyear or \$/customer-year. These are never combined into a table showing the sum total of all the marginal costs in any units. The units should be \$/kWh because those are the units in the proposed rate resolution.

My questions and Rates' answers further reveal that this rate costing study fails to justify the proposed rates, as described next.

In response to one of my questions on June 29, your Rates people (Rates@SMUD.org) gave incomplete and evasive answers on July 6 to some of my questions about the 2020 rate costing study, the proposed rates and the CEO and GM Report.

I will present my questions and SMUD's answers in line and indented.

MG #3 The 2020 Rate Study says, "The Sacramento Municipal Utility District's (SMUD) proposed rate structure as defined by the Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services is influenced by SMUD's Marginal Cost."

What else, besides SMUD's Marginal Cost, influences the proposed rate structure?

SMUD: Question #3 - Please see SMUD Chief Executive Officer and General Manager's Report Volume 1 for other factors such as the Strategic Direction 2 (SD-2) and the 2030 Zero Carbon Plan.

MG #4 How or in what ways do the other factors besides SMUD's Marginal Cost influence the proposed rate structure? Please elaborate and quantify.

SMUD Question #4 - See response to question #3. For example, the SD-2 objectives adopted by the Board provides direction to staff for rate design. In addition, SMUD's rate recommendation helps meets SMUD's financial targets and other strategic directions.

MG #5 The previous rate design study, called the “2018 Residential Time-of-Use Rate (RT02) Design Study”, contained a series of tables (Tables L, M, N and O) on pages 14 and 15 that presented the marginal cost of each of the components of SMUD’s cost of service and how SMUD got from those numbers to the proposed rates for 2018 and 2019. The 2020 Rate Study does not contain such tables. Is this omission intentional?

SMUD Question #5 - The tables referenced were not produced as we are not proposing to restructure residential rates in this recommendation.

MG #6 Will SMUD show its marginal cost and other data for the proposed rates in tables that are similar to Tables L, M, N and O from the 2018 Residential Time-of-Use Rate (RT02) Design Study?

SMUD Question #6 - No. See response to question#5.

MG #12 The 2018 Residential Time-of-Use Rate (RT02) Design Study used a “scalar” of 9.2%, which SMUD added to the total energy marginal cost to reach the 2017 energy charges. (Table M, page 14) SMUD’s explanation at the time was, “The proposed time-of-use energy rate is completed by setting proposed rate revenues equal to rate revenues for the budget year. The reconciliation of marginal costs to rate revenues is accomplished through increasing final marginal cost energy charges by a scalar of 9.2%.”

Table N added in another scalar of 0.35%. It has been said that the use of the 9.2% scalar is not allowed by the California Constitution, Article XIII C, because such use causes the then proposed rates to exceed SMUD’s reasonable cost of providing electricity service. The question is has SMUD backed this 9.2% scalar out of the proposed rates?

SMUD Question #12 - SMUD disagrees that use of the 9.2% scalar causes SMUD’s proposed rates to exceed its reasonable cost of service. SMUD has not backed the 9.2% scalar out of the proposed rates.

My comments:

SMUD’s answers to questions 3 and 4 reveal that these other items that “influence” SMUD’s marginal cost are not quantified in the 2020 rate costing study. They are alluded to, generally. The marginal costs shown in Table 3.1, which is the only table with units of \$/kWh, are much lower than the proposed rates. Therefore the rate costing study does not really justify the proposed rates.

SMUD's responses to questions 5 and 6 about restructuring the rates is not relevant. The point of these 2 questions and of the "2018 Residential Time-of-Use Rate (RT02) Design Study" is that the way SMUD can justify its rates is by identifying, as the 2018 rate design study did, each of the components of its marginal cost and adding them up. Because the 2020 study failed to do that it failed to justify the proposed rates.

How much higher than its marginal cost does SMUD think it can set its rates and still be considered not reasonably exceeding its cost of providing electricity service? Do you think you can go 50% over? 200% over? 30% over? Where is your bright dividing line and what is the legal and policy basis for it? The California Constitution, Article XIII C, does not give a number. My opinion is that 9.2% over the marginal costs is not the reasonable marginal cost.

I may provide further details and analysis of this alternative recommendation later, but consider this alternative recommendation #1 to be complete.

For now please acknowledge your receipt of this and place it on the agenda and in the rate resolution for the Board to consider, as the Public Utilities Code requires you to do.

Sincerely,

Mark Graham

Sent from my hard wired computer

Sacramento, California

August 31, 2021

The Board of Directors of the Sacramento Municipal Utility District met in special session via virtual meeting (online) at 5:30 p.m.

Roll Call:

Presiding: President Bui-Thompson

Present: Directors Rose, Fishman, Herber, Kerth,
Tamayo, and Sanborn

Present also were Paul Lau, Chief Executive Officer and General Manager; Laura Lewis, Chief Legal & Government Affairs Officer and General Counsel and Secretary, and members of SMUD's executive management; and SMUD employees and visitors.

President Bui-Thompson called for approval of the agenda. Director Tamayo moved for approval of the agenda, Director Fishman seconded, and the agenda was unanimously approved.

President Bui-Thompson then turned the meeting to Agenda Item 2, to hold a Public Rate Hearing on the Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report"); and the Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report"). President Bui-Thompson announced the public hearing would be transcribed by a court reporter, and, under the rate ordinance, members of the public who have not submitted a request for additional time at least 10 days in advance of today's meeting will have up to three minutes to provide non-duplicative testimony on the CEO & GM Report. President Bui-Thompson asked speakers to confine their comments to the rate report, and that if the public had comments on other SMUD matters, they would have an opportunity to speak during the statements from the public portion of the agenda.

President Bui-Thompson stated that over 40 requests to provide verbal public comment had been received and in order to ensure efficient conduct of the meeting, she asked speakers not to repeat comments of other speakers but

instead asked that they reference their agreement with those comments and add any further new points. President Bui-Thompson then asked General Counsel Lewis to provide any additional comments before opening the public hearing.

General Counsel Lewis stated the Board would be holding a public hearing on the CEO & GM Reports. She stated the Board would not be adopting the resolutions tonight but instead, after the hearing closed, the Board would discuss the introduction of the draft rate resolutions provided by staff or an alternative rate resolution. She stated the Board's introduction of the draft rate resolutions or alternative tonight would trigger the public comment period that would run for 10 days pursuant to SMUD's Ordinance 15-1, and at the September 16, 2021, Board meeting, staff will request the Board adopt the final rate resolutions.

At 5:34 p.m. President Bui-Thompson convened a public hearing on the Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report"); and the Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report"). A copy of the court reporter's transcript is attached to the minutes.

At 9:12 p.m. President Bui-Thompson closed the public hearing.

The public hearing was transcribed. For a complete record of the public hearing, please refer to the transcription.

President Bui-Thompson then addressed the Discussion Calendar, Item 3, the introduction of draft rate resolutions to changes to SMUD's Rates, Rules and Regulations proposed by: a. Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report") [two resolutions]; and b. Chief Executive Officer and General Manager's Report and Recommendation on Open Access transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report") [one resolution].

President Bui-Thompson called for public comment on Discussion Calendar Item 3.

Mark Graham stated he had some confusion about the difference between Agenda Items 2 and 3 and then stated the Board should read the entire CEO & General Manager's Report and Recommendation on Rates and Services (Volume 1 and 2) from start to finish before voting on the item. He referenced an e-mail that he had sent the Board and stated SMUD cannot have one category or class of subsidies of customers subsidize another.

President Bui-Thompson called for Steve Uhler, but he was not present and had not called the telephone number provided for him to give comment.

Vice President Rose shared some slides regarding his thoughts on the proposal. A copy of the slides is attached to these minutes.

After some discussion, Director Kerth moved for approval of Discussion Calendar Item 3, Director Fishman seconded, and Resolution No. 21-08-06 was approved by a vote of 6-0, with Vice President Rose abstaining.

RESOLUTION NO. 21-08-06

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. That this Board hereby approves introduction of two draft rate resolutions to make changes to SMUD's Rates, Rules and Regulations proposed by the Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report"), substantially in the form set forth in **Attachment A** and **Attachment B** hereto.

Section 2. That this Board approves introduction of a draft rate resolution to make changes to SMUD's Rates, Rules and Regulations proposed by the Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report"), substantially in the form set forth in **Attachment C** hereto.

Approved: August 31, 2021

INTRODUCED: DIRECTOR KERTH				
SECONDED: DIRECTOR FISHMAN				
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
BUI-THOMPSON	X			
ROSE			X	
FISHMAN	X			
HERBER	X			
KERTH	X			
TAMAYO	X			
SANBORN	X			

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300

community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in one meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on www.smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus, and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial targets in years 2022 and 2023, consisting of:

- Wildfire prevention and mitigation, due to increased costs and requirements for vegetation management and insurance for wildfire; and
- Infrastructure improvements to maintain high reliability, including continued investments in our distribution and transmission systems, as well as meeting regulatory requirements; and
- Clean energy compliance requirements – investing in clean energy resources like more wind, solar, hydro power and biogas to meet updated state requirements; and
- Increased operating costs, including materials and labor, due to the COVID-19 pandemic and the impacts it has had to global supply chains; and

WHEREAS, SMUD has adopted a robust risk-based prioritization process to develop operational efficiencies and other cost saving measures to offset higher costs and ensure that rate increases are less than the forecasted rate of inflation; and

WHEREAS, it is necessary for SMUD to increase retail rates by one and a half percent (1.5%) for all customers effective March 1, 2022, and two percent (2.0%) for all customers effective January 1, 2023, in order to continue to meet the objectives and metrics set forth in this Board's Strategic Directions; and

WHEREAS, the recommendations in the CEO & GM Report include minor language amendments in Rate Schedules R and R-TOD to improve clarity of which

months are included in each season, which rates customers may enroll in, and the closure of the Legacy and TOD (4-7 p.m.) rates; and

WHEREAS, SMUD proposes a new optional Residential CPP Rate for customers participating in a qualified program that will offer a per kWh discount on summer Off-Peak and Mid-Peak hours in exchange for a higher per kWh price during times when the grid is most stressed, up to 50 hours per summer; energy sent to the grid during CPP events will be compensated at the CPP event price; the CPP Rate will encourage customers to reduce their energy consumption during those times when the grid is most impacted, and send energy to the grid from solar or battery storage, thereby reducing stress on the grid, improving reliability, and promoting storage adoption; and

WHEREAS, on August 20, 2020, the Board approved postponing the implementation of the commercial rate restructure for one year, with the transition completing no later than May 31, 2022, as a result of the COVID-19 pandemic's impact on SMUD's operations and shifted priorities; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to reflect the delayed implementation of the commercial rate restructure to begin as early as October 1, 2021; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedules CB, CHP, EAPR, and EDR to reflect the delayed implementation of the commercial rate restructure timing; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to improve clarity and add storage systems in the list of devices that would allow customers to request an adjustment to their 12-month maximum demand; and

WHEREAS, the recommendations in the CEO & GM Report include updating the language in Rate Schedule CI-TOD1 to more accurately reflect the new rates nomenclature; and

WHEREAS, the recommendations in the CEO & GM Report include updating the applicability section of Rate Schedule CI-TOD2 to more clearly define which customers are subject to Rate Schedule CI-TOD2; and

WHEREAS, the recommendations in the CEO & GM Report include adding “Maximum Demand Charge” to the proration language of Rate Schedule AG to reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report include removing all language referencing rate category SL_DOM_M from Rate Schedule SLS; and

WHEREAS, the recommendations in the CEO & GM Report include adding language back into Rate Schedule SLS that was inadvertently removed in a prior rate action; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules AG, CI-TOD1, CI-TOD2, CI-TOD3, CI-TOD4, R and R-TOD to clarify which customers are exempt from the Generator Standby Service Charge; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule EAPR to reflect the end of the residential low-income discount transition and add the Maximum Demand Charge to the list of rate components that qualify for the Energy Assistance Program Rate discount; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule EDR by replacing the reference to the first meter read with a reference to the first billing period to align with the use of digital communicating meters; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule HGA by updating the generation amount from 35,000 MWh/inch to 30,000 MWh/inch to reflect new Federal Energy Regulatory Commission (FERC) licensing requirements and data collected since the implementation of Rate Schedule HGA; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule RBC by adding in the Summer Peak Demand Charge and updating the reference to Rate Schedule NEM with “Rate Schedules NEM1 and SSR” to reflect the updates approved by the Board in the 2019 rate action and the new Solar and Storage Rate; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rule and Regulation 13 – Temporary Service to more accurately reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, including:

- The Board establishes a rate target of 18 percent below Pacific Gas & Electric Company's published rates on a system average basis. In addition, the Board establishes a rate target of at least 10 percent below PG&E's published rates for each customer class;
- SMUD's rates shall be competitive with other local utilities on a system average basis;
- In addition, SMUD's rates shall be designed to balance and achieve the following goals:
 - Reflect the cost of energy when it is used or exported to the SMUD grid;
 - Reduce consumption during periods of high system demand;
 - Encourage energy efficiency, conservation and carbon reduction;
 - Encourage cost effective and environmentally beneficial Distributed Energy Resources (DERs) (examples of DERs include but are not limited to rooftop solar, battery storage and energy reduction applications);
 - Minimize the rate of change in the transition from one rate design to another;
 - Provide customers flexibility and choices;
 - Be as simple and easy to understand as possible;

- Address the needs of people with low incomes and severe medical conditions; and
- Equitably allocate costs across and within customer classes; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the recommendations to increase rates 1.5% on March 1, 2022, and 2.0% on January 1, 2023, for all customer classes are made on an across-the-board basis to reflect SMUD's cost increases of proportionate impact on all customer classes on average and therefore does not require an examination of the allocation of costs among customer classes or of class definitions; and

WHEREAS, the recommendations to implement the restructuring of the commercial rate restructure bring commercial Time-of-Day (TOD) rates and small commercial customer rates closer to the cost of service, including small commercial

Energy Assistance Program Rate (EAPR) customers that receive a discounted demand charge; and

WHEREAS, this Board has carefully considered the CEO & GM Report public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. RATE INCREASE FOR RESIDENTIAL RATES:

a. Effective March 1, 2022, adopt an increase in residential service rates by one and one half percent (1.5%). The increases will apply to all residential rates. The increases apply to the System Infrastructure Fixed Charge (SIFC), as well as the electricity usage charges and miscellaneous charges on customer bills.

b. Effective January 1, 2023, adopt an increase in residential service rates by two percent (2.0%). The increases will apply to all residential rates. The increases apply to the SIFC, as well as the electricity usage charges and miscellaneous charges on customer bills.

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 2. CHANGES TO RATE SCHEDULE R:

- a. Effective January 1, 2022, add the following language in Section I,

Subsection A of Rate Schedule R:

6. Customers who have a storage facility without an associated generating facility are not eligible to enroll in the Fixed Rate.

- b. Effective January 1, 2022, modify Section I, Subsection A,

Subsection 3 in Rate Schedule R as follows:

3. Customers who qualify for Rate Schedule NEM1 and have an eligible renewable electrical generation facility that was approved for installation prior to January 1, 2018 are eligible to enroll in the Fixed Rate ~~and NEM1 customers that are enrolled in the Fixed Rate~~ may remain on the Fixed Rate after December 31, 2022.

- c. Effective January 1, 2022, modify Section I, Subsection B,

Subsections 3 and 4 in Rate Schedule R as follows:

*3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018, and are enrolled on the Legacy Rate may remain on this closed rate until **transitioned to SMUD's standard TOD (5-8 p.m.) Rate as early as January 1, 2023, as technically feasible** ~~December 31, 2022~~. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.*

*4. The Legacy Rate **will be eliminated once all** ~~terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, and customers will then transition to SMUD's standard residential rate~~ **are removed from this rate and the rate transition is complete.***

d. Effective January 1, 2022, modify Section II, Subsections A and C of Rate Schedule R by adding the months for each season in the rates table and removing the following language:

~~**Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.*~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. CHANGES TO RATE SCHEDULE R-TOD:

a. Effective January 1, 2022, add Subsection 3 to Section I in Rate Schedule R-TOD as follows:

3. Customers who have an eligible renewable electrical generation facility under Rate Schedules NEM1 or SSR that was approved for installation by SMUD on or after January 1, 2018, or who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2018 must be on this Rate Schedule R-TOD.

b. Effective January 1, 2022, modify the language in Section I, Subsection A in Rate Schedule R-TOD as follows:

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD's residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.

~~*2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD after December 31, 2017, must be on the TOD (5-8 p.m.) Rate.*~~

32. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.

~~3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM2 must be on the TOD (5-8 p.m.) Rate.~~

~~43. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.~~

c. Effective January 1, 2022, modify Section I, Subsection B,

Subsection 3 in Rate Schedule R-TOD as follows:

~~3. The TOD (4-7 p.m.) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, as early as January 1, 2023 as technically feasible. Customers will then transition to SMUD's standard residential TOD (5-8 p.m.) Rate, as determined by SMUD.~~

d. Effective January 1, 2022, modify Section II, Subsection A of Rate

Schedule R-TOD by adding the months for each season in the rates table and removing the following language:

~~*Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. CRITICAL PEAK PRICING RATE:

a. Effective January 1, 2022, add Subsection C to Section I in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing (CPP) Rate (rate categories RTC1 and RTC2)

1. The CPP rate is available as of June 1, 2022 for customers who are participating in a qualifying program. Customers that have accepted a storage incentive under the Solar and Storage Rate incentive program are

required to enroll in this rate for a duration as determined by SMUD program rules posted on www.smud.org.

2. A maximum of 30,000 customers may be enrolled in this rate at any given time.

3. CPP Events may range from one to four hours, but not more than once per day. CPP Events may be called during any hour of the day during summer months, including holidays and weekends, up to 50 hours per summer. CPP Events may span multiple time-of-day periods.

4. CPP Events will be announced by SMUD a day in advance. However, in the event of a system emergency, announcements may occur the same day as the event.

5. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

b. Effective January 1, 2022, add Subsection C to Section II in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing Rate

1. The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).

2. The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.

3. During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.

4. During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.

5. The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org

c. Effective January 1, 2022, customers electing to enroll in the Critical Peak Pricing Rate may also receive the Electric Vehicle discount.

d. The Critical Peak Pricing Rate will follow new rates nomenclature as determined by SMUD.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. RATE INCREASE FOR AGRICULTURAL AND COMMERCIAL RATES:

a. Effective March 1, 2022, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Services, and Combined Heat & Power Distributed Generation rates (Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, formerly known as Rate Schedules GS, GS-TOU1, GS-TOU2, GS-TOU3, and Rate Schedules AG, CHP, DWS, and GS-TDP) shall be increased by one and one half percent (1.5%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Super Peak Demand Charges;
- Summer Peak Demand Charges;

- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

b. Effective January 1, 2023, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Service, and Combined Heat & Power Distributed Generation rates, (Rate Schedules AG, CHP, CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, DWS and GS-TDP) shall be increased by two percent (2.0%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Peak Demand Charges;
- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 6. IMPLEMENTATION OF COMMERCIAL RATE

RESTRUCTURE:

a. Effective September 17, 2021, move the transition language from Section I, Subsections A and B, to a new Section II. Transition to Restructured Commercial & Industrial Time-of-Day Rates in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

b. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD1 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GSN_T and GSS_T) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-0 and CITS-1) beginning the first full billing cycle in October 2021.*
- 3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).*

c. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD2 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GUS_S and GUP_S) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured*

Commercial & Industrial Time-of-Day rates (CITS-2 and CITP-2) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

d. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD3 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_M, GUP_M and GUT_M) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-3, CIP-3, and CITT-3) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

e. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD4 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_L, GUP_L and GUT_L) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-4, CIP-4, and CITT-4) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

f. Effective September 17, 2021, modify Section III, Subsection A in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 by adding the closing date, October 1, 2021, to the title of Subsection A and the following sentence after the Legacy rate prices:

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

g. Effective September 17, 2021, update the language after the price table in Section III, Subsection C in Rate Schedule CI-TOD1 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

h. Effective September 17, 2021, update the language after the price table in Section III, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

i. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section V, Subsection D of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges, Site Infrastructure Charges, **Summer Super Peak Demand Charge**, Summer Peak Demand Charges, as well as electricity usage charges for SMUD-provided power.*

j. Effective September 17, 2021, add the Maximum Demand Charge to Section V, Subsection D of Rate Schedule CI-TOD1 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, **Maximum Demand Charge**, Summer Peak Demand Charges ~~(if applicable)~~ and electricity usage charges for SMUD-provided power.*

k. Effective September 17, 2021, update the date the Legacy commercial rates will close, October 1, 2021, in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

l. Effective September 17, 2021, modify the title of Section VII, Subsection A of Rate Schedule CI-TOD1 as follows:

*B. Legacy ~~GSN_T, GSS_T and GFN~~**Time-of-Use Billing Periods**
(closed as of October 1, 2021)*

m. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section VIII, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 7. MISCELLANEOUS COMMERCIAL UPDATES:

a. Effective September 17, 2021, modify Section V, Subsection C in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4 as follows:

*C. Implementation of Energy Efficiency or Installation of New Solar/Photovoltaic **or Storage Systems***

*Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic **or storage** system to offset their on-site energy usage may request, in writing, within 30 days of*

*the project completion and commissioning, an adjustment to their ~~billing demand~~ **twelve month maximum demand** based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted ~~billing demand~~ **twelve month maximum demand** is valid for 12 months or until it is exceeded by actual maximum demand.*

b. Effective September 17, 2021, move Section V, Subsection D to a new Section VII. Commercial & Industrial Time-of-Day Billing Periods, with the remaining section numbers updated accordingly in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

c. Effective September 17, 2021, add the holidays in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

d. Effective September 17, 2021, modify the title of Section VII, Subsection B of Rate Schedule CI-TOD1 as follows:

B. Restructured ~~CITS-0 and CITS-1~~ Time-of-Day Billing Periods

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 8. MODIFICATIONS TO RATE SCHEDULE CI-TOD1:

a. Effective September 17, 2021, update Section I, Subsection A of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of 20 kW or less. Whenever the monthly maximum demand exceeds 20 kW for any three consecutive months and the monthly energy usage is at least 7,300 kWh for any three consecutive months within a 12-month period, the account will be billed on the applicable ~~demand~~ rate. To return to the ~~nondemand~~ **CITS-0** rate, the monthly maximum demand must be 20 kW or less for 12-consecutive months or the usage must be less than 7,300 kWh for 12 consecutive months.*

b. Effective September 17, 2021, update Section I, Subsection C of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of at least 21 kW but does not exceed 299 kW for any three consecutive months and monthly energy usage of at least 7,300 kWh for any three consecutive months within a 12-month period. The customer will be billed on this ~~demand~~ rate unless the monthly usage is less than 7,300 **kWh** for 12 consecutive months; or the maximum demand falls below 21 kW for 12 consecutive months; or the monthly maximum demand exceeds 299 kW for three consecutive months.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 9. MODIFICATIONS TO RATE SCHEDULE CI-TOD2:

a. Effective September 17, 2021, modify Section I of Rate Schedule CI-TOD2 as follows:

*This Rate Schedule CI-TOD2 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand of at least 300 kW for three consecutive months, but not greater than 499 kW for three consecutive months during the preceding 12 months, ~~and for all accounts previously served at the primary level on Rate Schedule GS.~~ Accounts **served at the secondary service voltage level** will remain on the CI-TOD2 rate schedule unless monthly maximum demand falls below 300 kW for 12 consecutive months or exceeds 499 kW for three consecutive months. **Accounts served at the primary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand exceeds 499 kW for three consecutive months.** This schedule is also mandatory for accounts with contract capacity of at least 300 kW, but not greater than 499 kW. The demand for any month shall be the maximum 15-minute kW delivery during the month.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 10. MODIFICATIONS TO RATE SCHEDULE AG:

Effective January 1, 2022, add “Maximum Demand Charge” to the proration language in Section VI, Subsection B of Rate Schedule AG.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 11. CHANGES TO STREET, TRAFFIC, AND LIGHTING

SERVICES:

a. Effective March 1, 2022, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by one and one half percent (1.5%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

b. Effective January 1, 2023, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by two percent (2.0%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

The prices in the tariff may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 12. MISCELLANEOUS CHANGES TO RATE SCHEDULE SLS:

Effective March 1, 2022, remove all reference and prices for SL_DOM_M from Rate Schedule SLS and add “Effective the first full billing cycle after the following date(s), the charge will be as follows:” in Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations. _

**Section 13. MISCELLANEOUS UPDATES DUE TO COMMERCIAL
RESTRUCTURE DELAY:**

- a. Effective September 17, 2021, modify Rate Schedule CB by adding “Summer Super Peak Demand Charge” to Section VI, Subsection B.
- b. Effective September 17, 2021, modify Rate Schedule EAPR by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.
- c. Effective September 17, 2021, modify Rate Schedule EDR by adding “Summer Super Peak Demand Charge” to Section III, Subsections A and B.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

**Section 14. MODIFICATIONS TO GENERATOR STANDBY SERVICE
LANGUAGE:**

- a. Effective September 17, 2021, delete Section V, Subsection D, Subsection 2 of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4.
- b. Effective September 17, 2021, modify the following language in Section V, Subsection D of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

- c. Effective March 1, 2022, delete Section IV, Subsection E, Subsection 2 of Rate Schedule R.
- d. Effective March 1, 2022, modify the following language in Section IV, Subsection E of Rate Schedule R as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

e. Effective March 1, 2022, delete Section IV, Subsection D, Subsection 2 of Rate Schedule R-TOD.

f. Effective March 1, 2022, modify the following language in Section IV, Subsection D of Rate Schedule R-TOD as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

g. Effective March 1, 2022, delete Section IV, Subsection A, Subsection 2 of Rate Schedule AG.

h. Effective March 1, 2022, modify the following language in Section IV, Subsection A of Rate Schedule AG as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 15. MODIFICATIONS TO RATE SCHEDULE EAPR:

a. Effective September 17, 2021, add “Maximum Demand Charge (kW)” to Section V, Subsection A in Rate Schedule EAPR.

b. Effective January 1, 2022, remove the following language from Section III of Rate Schedule EAPR:

Beginning as early as the first full bill cycle in 2021

c. Effective January 1, 2022, remove the reference to 2021 in the table in Section III, Subsection 2 of Rate Schedule EAPR.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 16. MODIFICATIONS TO RATE SCHEDULE EDR:

Effective September 17, 2021, modify Section IV, Subsection B of Rate Schedule EDR as follows:

*New customers must apply for the EDR option prior to commencement of service with SMUD. Temporary service is not eligible for the EDR option. Applicants will have 12 months from the agreement date to reach the maximum demand of at least 300 kW load requirement. The effective start date for the EDR for new customers is the date of the ~~first meter read for billing~~ **first billing period** after three consecutive months with a maximum demand of at least 300 kW*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 17. MODIFICATIONS TO RATE SCHEDULE HGA:

a. Effective January 1, 2022, modify Section II, Subsection A of Rate Schedules HGA as follows:

*SMUD estimates that each inch of precipitation results in ~~35,000~~ **30,000** megawatt hours (MWh) of generation.*

b. Effective January 1, 2022, modify Section III, Subsection B of Rate Schedule HGA as follows:

Generation Conversion

*$\pm \text{IPV} \times \del{35,000} \text{ **30,000** MWh/inch} = \pm \text{MWh}$*

*The variance of hydro generation, in megawatt hours, equals the inches of precipitation variance $\times \del{35,000} \text{ **30,000** MWh/inch}.$*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 18. MODIFICATIONS TO RATE SCHEDULE RBC:

- a. Effective September 17, 2021, modify Section VI, Subsection C of

Rate Schedule RBC as follows:

*Customers taking service on this Rate Schedule are not eligible to take service on Rate Schedules ~~Not Energy Metering (NEM)~~ **NEM1 or SSR.***

- b. Effective September 17, 2021, add “Summer Peak Demand Charge” to Section IV, Subsection A of Rate Schedule RBC.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 19. UPDATE RULE AND REGULATION 13:

- a. Effective September 17, 2021, modify Section II of Rule and

Regulation 13 as follows:

*Within three years of the date when service was first delivered, service will be considered permanent and payments made in excess of **delinquent** meter and service charges shall be refunded without interest when a customer served under this rule has requested a refund of temporary charges, and has:*

1. *Installed sewer, water, and foundation; or*
2. *Operated the same or greater electrical load originally installed for a period of 36 consecutive months from the date when service was first delivered under this rule.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 20. ALTERNATIVE RECOMMENDATION 1: SMUD received a recommendation to back out the “9.2% scalar” built into the original time of day (TOD)

rates in 2017, plus all of the across the board rate increases that have increased that scalar up to about 10.7% before applying the proposed 1.5% and 2.0% rate increases. This Board has considered this alternative recommendation 1 and has determined not to adopt the alternative recommendation for the following reasons:

- This rate action does not address the current residential 2021 rates.
This Board approved the current residential 2021 rates in the 2019 rate action.
- The use of a scalar is described in the 2017 CEO & GM Report, under Appendix I. The scalar was used to reconcile marginal cost to achieve a revenue neutral restructured TOD rate design prior to adjusting the rates with the proposed 2018 and 2019 rate increases adopted in 2017.
- Increasing marginal cost rates by a scalar (or equal percentage of marginal cost) is an accepted practice by the industry and is used to ensure sufficient collection of revenue to meet costs.

Section 21. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

Section 22. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant

part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

- (A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.
- (C) The above findings are based on information set forth in the CEO & GM Report.

Section 23. The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

Section 24. To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

Rates, Rules and Regulations Effective in 2021

DRAFT
Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

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Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

Commercial & Industrial Campus Billing Rate Schedule CB

I. Applicability

This Rate Schedule CB is optional for Commercial & Industrial customers served at a common address or industrial campus that have several accounts or service entrances on the same contiguous campus. Campus Billing provides for either hardwire or post-metering of a combination of these accounts to a single load shape for billing purposes. Under this option the customer receives one bill for the entire campus and the aggregated monthly maximum kW is used to determine the applicable rate schedule under which the campus account will be billed. Campus billing is available to customers where at least one existing account to be included in the campus account is on Rate Schedules CI-TOD2, CI-TOD3, or CI-TOD4.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

II. Pricing Structure

A. System Infrastructure Fixed Charge

The customer pays a single System Infrastructure Fixed Charge to recover the cost of maintaining or replacing one meter and the overhead costs for billing and customer service.

B. Campus Meters Charge

The customer must pay a Campus Meters Charge for all but the first meter. The Campus Meters Charge recovers costs for the meters, Current Transformer (CT), Potential Transformer (PT), meter testing, data management services, auxiliary metering equipment and additional billing services. The Campus Meters Charges vary by service voltage level. Information on the associated monthly charges is available on SMUD’s website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.

C. Data Services Meter Rental

If a data service meter is required for communication with a legacy meter(s) there is an additional fee for rental of the data services meter. Information on the associated monthly charges is available on SMUD’s website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.

D. Rate Changes

Campus billing prices will be subject to any applicable changes to the Commercial & Industrial Time-of-Day rates, the Campus Meter Charges, and the Data Services Meter Rental Charge.

III. Site Infrastructure Charge

When the accounts are aggregated through Campus Billing, SMUD creates a new account with no billing history. As a result, the 12-months maximum kW basis for the Site Infrastructure Charge is initially set by the first month’s maximum kW on the campus account.

IV. Conditions of Service

The following criteria define the conditions under which campus rates would be permitted. Failure to comply with any of these conditions will revoke the option for campus billing and the campus will be returned to individual accounts on their applicable rate.

- A.** All accounts are under the same legal entity buying and consuming the power at the site.

**Commercial & Industrial Campus Billing
Rate Schedule CB**

- B.** The term “legal entity” means the name on each account must be the same company/organization.
- C.** All meters are on a contiguous site. The parcels of land are physically adjacent; the parcels may be separated by public streets or railways.
- D.** No meter provides sub-metering on campus to third parties.
- E.** All meters are served at the same service voltage. SMUD recognizes the following three voltage classes:
 - 1. Transmission – 69 kV or higher
 - 2. Primary – 12 kV or 21 kV
 - 3. Secondary – all voltages lower than 12 kV
- F.** Each meter is capable of interval metering on each service entrance.
If a meter is not capable of interval metering the customer will be charged for the cost of installing such a meter.
- G.** Agricultural Service and CI-TOD1 accounts.

AG and CI-TOD1 can be included in a campus account, however, a campus account cannot consist of solely accounts on Agricultural service or solely on CI-TOD1 or a combination of Agricultural and CI-TOD1 cannot combine into a campus account.
- H.** The campus account maintains or exceeds CI-TOD2 eligibility.
- I.** No use of parallel systems for shifting load between different rate offerings.

Should this occur, SMUD shall have the right to corrective billing on a single rate and full reimbursement of waived System Infrastructure Fixed Charges.
- J.** The customer provides SMUD with a single point of contact for billing and service questions.
- K.** At least one of the proposed campus accounts is on rate schedule CI-TOD2, CI-TOD3 or CI-TOD4 as defined in the applicable rate schedules at the time campus billing is requested.
- L.** All the meters must feed off the same substation as determined by SMUD. For subtransmission customers, all meters must be fed off the same bank at the substation as determined by SMUD.

Campus accounts created before January 1, 2014, are grandfathered under the prior rate option with regard to subsection K, and subsection L. If a grandfathered account requests that additional meters be added to the campus, the addition will be allowed if the service is fed from a substation already part of the campus account.

V. Setting Up a Campus Account

A customer can request campus billing from an Energy Advisor. The Energy Advisor will verify the customer’s accounts meet the requirements and the eligibility for campus billing. If the Energy Advisor determines the accounts are eligible the Energy Advisor will provide a Request for Campus Billing Option form for the customer detailing the startup costs and the ongoing monthly costs. Once the Request form is returned with the customer’s signature acknowledging the costs the Energy Advisor will submit the request to Billing. Campus billing will start on the bill after all accounts have been prepared for campus billing.

VI. Billing**A. Service Rendered**

Service rendered in accordance with this rate is at SMUD’s sole discretion.

Commercial & Industrial Campus Billing Rate Schedule CB

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is less than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is more than 34 days	
Price changes within billing period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

VII. Terminating a Campus Billing Account

If after a rolling twelve-month period the demand for the campus account falls below the minimum demand for a CI-TOD2 rate, the campus account will be terminated. All meters will revert to individual accounts. The accounts will not be eligible to return to a campus account for twelve months thereafter and only if they meet all the criteria for the Campus Billing Option listed in Section IV Conditions of Service. This rule applies to all Campus accounts regardless of the date they were created.

The customer can elect to revert back to individual accounts at any time by contacting Billing or an Energy Advisor. All meters will be converted to single accounts and the corresponding current rates will be assigned based on usage and demand. It may take more than one billing cycle to change the campus account back to individual accounts.

VIII. Reinstating a Campus Billing Account

After terminating the Campus Billing Option, the campus account, or dropping one or more meters from the campus account, the customer cannot have any of the meters that comprised the campus account reinstated on an existing or new campus account for 12 months from the date of removal from the option.

After 12 months, the meters can be used to create a new campus account or be added to an existing campus.

If the original campus account no longer exists, the procedure for setting up a Campus Account must be followed. See section V.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

I. Applicability

This Rate Schedule CI-TOD1 applies to single- or three-phase service delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand that does not exceed 299 kW for three or more consecutive months. Commercial & Industrial Time-of-Day customers include commercial and nonagricultural irrigation pumping accounts. This schedule also applies to Commercial & Industrial Time-of-Day accounts with contract capacity of 299 kW or less. The demand for any month shall be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

A. C&I Secondary 0-20 kW (rate categories GSN_T/CITS-0)

These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of 20 kW or less. Whenever the monthly maximum demand exceeds 20 kW for *any* three consecutive months and the monthly energy usage is at least 7,300 kWh for *any* three consecutive months within a 12-month period, the account will be billed on the applicable rate. To return to the CITS-0 rate, the monthly maximum demand must be 20 kW or less for 12-consecutive months **or** the usage must be less than 7,300 kWh for 12 consecutive months.

B. Small Nondemand, Nonmetered Service (rate category GFN)

This rate applies to Commercial & Industrial Time-of-Day accounts where an account's monthly consumption of electricity is consistently small or can be predetermined with reasonable accuracy by reference to the capacity of equipment served and the hours of operation, SMUD, at its discretion, and with the customer's consent, will calculate electricity consumed in lieu of providing metering equipment.

C. C&I Secondary 21-299 kW (rate categories GSS_T/CITS-1)

These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of at least 21 kW but does not exceed 299 kW for *any* three consecutive months **and** monthly energy usage of at least 7,300 kWh for *any* three consecutive months within a 12-month period. The customer will be billed on this rate unless the monthly usage is less than 7,300 kWh for 12 consecutive months; or the maximum demand falls below 21 kW for 12 consecutive months; or the monthly maximum demand exceeds 299 kW for three consecutive months.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GSN_T and GSS_T) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-0 and CITS-1) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GSN T (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.35	\$22.80	\$23.15
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1441	\$0.1470	\$0.1492
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.35	n/a	\$23.15
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.3327	n/a	\$0.3444
Off-Peak <i>\$/kWh</i>	\$0.1216	n/a	\$0.1260
GSS T (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$27.15	\$27.70	\$28.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$8.390	\$8.560	\$8.688
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1131	\$0.1153	\$0.1170
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$27.15	n/a	\$28.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$8.390	n/a	\$8.688
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.2885	n/a	\$0.2987
Off-Peak <i>\$/kWh</i>	\$0.1001	n/a	\$0.1036

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

B. GFN Rates

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
GFN				
All Year				
System Infrastructure Fixed Charge <i>per month per meter</i>	\$9.95	\$10.15	\$10.30	\$10.50
Electricity Usage Charge				
All day <i>\$/kWh</i>	\$0.1458	\$0.1487	\$0.1509	\$0.1539

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

C. Restructured Commercial & Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-0: C&I Secondary 0-20 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.40	\$28.85	\$35.15
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$0.000	\$0.000	\$0.000
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1430	\$0.1451	\$0.1440
Off-Peak <i>\$/kWh</i>	\$0.1393	\$0.1414	\$0.1364
Off-Peak Saver <i>\$/kWh</i>	\$0.1373	\$0.1394	\$0.1323
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.40	\$28.85	\$35.15
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$0.000	\$0.000	\$0.000
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.2355	\$0.2390	\$0.2554
Off-Peak <i>\$/kWh</i>	\$0.1331	\$0.1351	\$0.1349
CITS-1: C&I Secondary 21-299 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$88.05	\$89.35	\$158.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$7.930	\$8.049	\$7.568
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1169	\$0.1187	\$0.1230
Off-Peak <i>\$/kWh</i>	\$0.1136	\$0.1153	\$0.1158
Off-Peak Saver <i>\$/kWh</i>	\$0.1078	\$0.1094	\$0.1030
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$88.05	\$89.35	\$158.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$7.930	\$8.049	\$7.568
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$1.680	\$1.705	\$3.468
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1897	\$0.1925	\$0.1983
Off-Peak <i>\$/kWh</i>	\$0.1102	\$0.1119	\$0.1119

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges:

A. **Hydro Generation Adjustment (HGA).** Refer to Rate Schedule HGA.

V. Rate Option Menu

A. **Energy Assistance Program for Nonprofit Agencies.** Refer to Rate Schedule EAPR.

B. **Campus Rates.** Refer to Rate Schedule CB.

C. **Implementation of Energy Efficiency Program or Installation of New Solar/Photovoltaic or Storage Systems**

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **CI-TOD1-3**

Effective: **September 17, 2021**

Edition: **September 17, 2021**

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

D. Generator Standby Service Option

Generator Standby Service applies when the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Maximum Demand Charge, Summer Peak Demand Charges and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Options

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. *Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. **Adjustment (charge per month varies)**

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate per excess KVAR

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for the term of the waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

1. Winter (October 1 – May 31) All hours are off-peak.

2. Summer Time-of-Use Billing Periods (June 1 – September 30)

On-Peak	Summer weekdays between 3:00 p.m. and 6:00 p.m.
Off-Peak	All other hours, including holidays shown below

Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

1. Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this Rate Schedule will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Peak Demand Charge, Maximum Demand Charge, and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

**Commercial & Industrial Time-of-Day
Rate Schedule CI-TOD1**

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*	2026*	2027*	2028*
CITS-0: C&I Secondary 0-20 kW									
System Infrastructure Fixed Charge	per month	\$28.40	\$28.85	\$35.15	\$35.65	\$36.15	\$36.60	\$37.10	\$37.60
Maximum Demand Charge	per kW	\$0.000	\$0.000	\$0.000	\$0.694	\$1.387	\$2.081	\$2.775	\$3.468
Non-Summer Peak	per kWh	\$0.1430	\$0.1451	\$0.1440	\$0.1407	\$0.1374	\$0.1341	\$0.1307	\$0.1274
Non-Summer Off-Peak	per kWh	\$0.1393	\$0.1414	\$0.1364	\$0.1300	\$0.1237	\$0.1173	\$0.1110	\$0.1046
Non-Summer Off-Peak Saver	per kWh	\$0.1373	\$0.1394	\$0.1323	\$0.1242	\$0.1163	\$0.1084	\$0.1003	\$0.0923
Summer Peak	per kWh	\$0.2355	\$0.2390	\$0.2554	\$0.2645	\$0.2736	\$0.2827	\$0.2917	\$0.3009
Summer Off-Peak	per kWh	\$0.1331	\$0.1351	\$0.1349	\$0.1324	\$0.1300	\$0.1277	\$0.1253	\$0.1229
CITS-1: C&I Secondary 21-299 kW									
System Infrastructure Fixed Charge	per month	\$88.05	\$89.35	\$158.30	\$225.40	\$292.50	\$359.65	\$425.25	\$425.25
Site Infrastructure Charge	per kW	\$7.930	\$8.049	\$7.568	\$6.916	\$6.274	\$5.622	\$4.969	\$4.969
Summer Peak Demand Charge	per kW	\$1.680	\$1.705	\$3.468	\$5.208	\$6.937	\$8.676	\$10.415	\$10.415
Non-Summer Peak	per kWh	\$0.1169	\$0.1187	\$0.1230	\$0.1249	\$0.1267	\$0.1287	\$0.1306	\$0.1306
Non-Summer Off-Peak	per kWh	\$0.1136	\$0.1153	\$0.1158	\$0.1138	\$0.1119	\$0.1101	\$0.1082	\$0.1082
Non-Summer Off-Peak Saver	per kWh	\$0.1078	\$0.1094	\$0.1030	\$0.0945	\$0.0859	\$0.0773	\$0.0691	\$0.0691
Summer Peak	per kWh	\$0.1897	\$0.1925	\$0.1983	\$0.2001	\$0.2020	\$0.2039	\$0.2057	\$0.2057
Summer Off-Peak	per kWh	\$0.1102	\$0.1119	\$0.1119	\$0.1099	\$0.1079	\$0.1058	\$0.1038	\$0.1038

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

I. Applicability

This Rate Schedule CI-TOD2 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand of at least 300 kW for three consecutive months, but not greater than 499 kW for three consecutive months during the preceding 12 months. Accounts served at the secondary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand falls below 300 kW for 12 consecutive months or exceeds 499 kW for three consecutive months. Accounts served at the primary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand exceeds 499 kW for three consecutive months. This schedule is also mandatory for accounts with contract capacity of at least 300 kW, but not greater than 499 kW. The demand for any month shall be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_S and GUP_S) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-2 and CIP-2) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS S (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.200	\$4.280	\$4.344
Electricity Usage Charge			
On-Peak \$/kWh	\$0.1154	\$0.1178	\$0.1196
Off-Peak \$/kWh	\$0.0917	\$0.0935	\$0.0949
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.200	n/a	\$4.344
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$8.470	n/a	\$8.770
Electricity Usage Charge			
Super-Peak \$/kWh	\$0.2220	n/a	\$0.2299
On-Peak \$/kWh	\$0.1517	n/a	\$0.1570
Off-Peak \$/kWh	\$0.1206	n/a	\$0.1248
GUP S (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.770	\$3.840	\$3.898
Electricity Usage Charge			
On-Peak \$/kWh	\$0.1089	\$0.1112	\$0.1129
Off-Peak \$/kWh	\$0.0866	\$0.0884	\$0.0897
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.770	n/a	\$3.898
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.720	n/a	\$7.998
Electricity Usage Charge			
Super-Peak \$/kWh	\$0.2113	n/a	\$0.2187
On-Peak \$/kWh	\$0.1461	n/a	\$0.1512
Off-Peak \$/kWh	\$0.1147	n/a	\$0.1188

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

B. Restructured Commercial & Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-2: C&I Secondary 300-499 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$201.60	\$204.60	\$428.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.360	\$4.425	\$4.597
Electricity Usage Charge			
Peak \$/kWh	\$0.1194	\$0.1212	\$0.1236
Off-Peak \$/kWh	\$0.0964	\$0.0979	\$0.1000
Off-Peak Saver \$/kWh	\$0.0956	\$0.0970	\$0.0990
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$201.60	\$204.60	\$428.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.360	\$4.425	\$4.597
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.440	\$9.582	\$9.877
Electricity Usage Charge			
Peak \$/kWh	\$0.2153	\$0.2185	\$0.2195
Off-Peak \$/kWh	\$0.1356	\$0.1376	\$0.1333
CITP-2: C&I Primary 300-499 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$154.45	\$156.75	\$204.95
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.640	\$3.695	\$3.551
Electricity Usage Charge			
Peak \$/kWh	\$0.1141	\$0.1158	\$0.1249
Off-Peak \$/kWh	\$0.0924	\$0.0938	\$0.1033
Off-Peak Saver \$/kWh	\$0.0907	\$0.0921	\$0.0939
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$154.45	\$156.75	\$204.95
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.640	\$3.695	\$3.551
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$8.690	\$8.820	\$9.401
Electricity Usage Charge			
Peak \$/kWh	\$0.2075	\$0.2106	\$0.2016
Off-Peak \$/kWh	\$0.1326	\$0.1346	\$0.1277

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, as well as electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

The customer shall pay for additional equipment and software identified by SMUD meter specialists as necessary for load data collection and upload to the customer electronic system. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as "Primary" or "Subtransmission."

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer's monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer's monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. **Power Factor Adjustment or Waiver**

1. **Adjustment (charge per month varies)**

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for term of waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

VII. Commercial & Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that falls within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service may be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

**Commercial & Industrial Time-of-Day
Rate Schedule CI-TOD2**

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*	2026*	2027*	2028*
CITS-2: C&I Secondary 300-499 kW									
System Infrastructure Fixed Charge	per month	\$201.60	\$204.60	\$428.35	\$649.65	\$879.70	\$1,116.60	\$1,353.60	\$1,588.80
Site Infrastructure Charge	per kW	\$4.360	\$4.425	\$4.597	\$4.669	\$4.742	\$4.824	\$4.897	\$4.969
Summer Peak Demand Charge	per kW	\$9.440	\$9.582	\$9.877	\$9.980	\$10.094	\$10.198	\$10.301	\$10.415
Non-Summer Peak	per kWh	\$0.1194	\$0.1212	\$0.1236	\$0.1251	\$0.1266	\$0.1281	\$0.1295	\$0.1311
Non-Summer Off-Peak	per kWh	\$0.0964	\$0.0979	\$0.1000	\$0.1015	\$0.1029	\$0.1044	\$0.1059	\$0.1074
Non-Summer Off-Peak Saver	per kWh	\$0.0956	\$0.0970	\$0.0990	\$0.0933	\$0.0873	\$0.0812	\$0.0752	\$0.0691
Summer Peak	per kWh	\$0.2153	\$0.2185	\$0.2195	\$0.2186	\$0.2177	\$0.2168	\$0.2158	\$0.2148
Summer Off-Peak	per kWh	\$0.1356	\$0.1376	\$0.1333	\$0.1277	\$0.1219	\$0.1160	\$0.1101	\$0.1043
CITP-2: C&I Primary 300-499 kW									
System Infrastructure Fixed Charge	per month	\$154.45	\$156.75	\$204.95	\$249.95	\$297.30	\$297.30	\$297.30	\$297.30
Site Infrastructure Charge	per kW	\$3.640	\$3.695	\$3.551	\$3.344	\$3.127	\$3.127	\$3.127	\$3.127
Summer Peak Demand Charge	per kW	\$8.690	\$8.820	\$9.401	\$9.804	\$10.218	\$10.218	\$10.218	\$10.218
Non-Summer Peak	per kWh	\$0.1141	\$0.1158	\$0.1249	\$0.1333	\$0.1434	\$0.1434	\$0.1434	\$0.1434
Non-Summer Off-Peak	per kWh	\$0.0924	\$0.0938	\$0.1033	\$0.1125	\$0.1235	\$0.1235	\$0.1235	\$0.1235
Non-Summer Off-Peak Saver	per kWh	\$0.0907	\$0.0921	\$0.0939	\$0.0869	\$0.0784	\$0.0784	\$0.0784	\$0.0784
Summer Peak	per kWh	\$0.2075	\$0.2106	\$0.2016	\$0.1918	\$0.1805	\$0.1805	\$0.1805	\$0.1805
Summer Off-Peak	per kWh	\$0.1326	\$0.1346	\$0.1277	\$0.1201	\$0.1113	\$0.1113	\$0.1113	\$0.1113

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

I. Applicability

This Rate Schedule CI-TOD3 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all agricultural, commercial and industrial (C&I) accounts with monthly maximum demand of at least 500 kW for three consecutive months, but not greater than 999 kW for three consecutive months during the preceding 12 months. Accounts will remain on this schedule unless monthly maximum demand falls below 500 kW for 12 consecutive months or exceeds 999 kW for three consecutive months. This schedule is also mandatory for accounts with contract capacity of at least 500 kW, but not greater than 999 kW. The demand for any month will be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_M, GUP_M and GUT_M) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-3, CITP-3, and CITT-3) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.160	\$3.220	\$3.268
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1138	\$0.1161	\$0.1178
Off-Peak <i>\$/kWh</i>	\$0.0900	\$0.0918	\$0.0932
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.160	n/a	\$3.268
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.710	n/a	\$7.998
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.2156	n/a	\$0.2233
On-Peak <i>\$/kWh</i>	\$0.1485	n/a	\$0.1538
Off-Peak <i>\$/kWh</i>	\$0.1144	n/a	\$0.1183
GUP_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.790	\$2.850	\$2.893
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1076	\$0.1097	\$0.1113
Off-Peak <i>\$/kWh</i>	\$0.0853	\$0.0870	\$0.0883
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.790	n/a	\$2.893
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.110	n/a	\$7.359
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.2053	n/a	\$0.2125
On-Peak <i>\$/kWh</i>	\$0.1432	n/a	\$0.1482
Off-Peak <i>\$/kWh</i>	\$0.1088	n/a	\$0.1126
GUT_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	\$322.70	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.290	\$2.340	\$2.375
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1037	\$0.1058	\$0.1074
Off-Peak <i>\$/kWh</i>	\$0.0835	\$0.0851	\$0.0864
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	n/a	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.290	n/a	\$2.375
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$0.000	n/a	\$0.000
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1994	n/a	\$0.2063
On-Peak <i>\$/kWh</i>	\$0.1341	n/a	\$0.1389
Off-Peak <i>\$/kWh</i>	\$0.1071	n/a	\$0.1109

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

B. Restructured Commercial Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-3: C&I Secondary 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$278.60	\$282.80	\$781.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.610	\$3.664	\$4.152
Electricity Usage Charge			
Peak \$/kWh	\$0.1183	\$0.1201	\$0.1225
Off-Peak \$/kWh	\$0.0958	\$0.0972	\$0.0992
Off-Peak Saver \$/kWh	\$0.0919	\$0.0933	\$0.0906
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$278.60	\$282.80	\$781.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.610	\$3.664	\$4.152
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.070	\$9.206	\$9.732
Electricity Usage Charge			
Peak \$/kWh	\$0.2071	\$0.2102	\$0.2111
Off-Peak \$/kWh	\$0.1262	\$0.1281	\$0.1212
CITP-3: C&I Primary 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$287.15	\$291.45	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.020	\$3.065	\$3.127
Electricity Usage Charge			
Peak \$/kWh	\$0.1269	\$0.1288	\$0.1314
Off-Peak \$/kWh	\$0.1102	\$0.1119	\$0.1141
Off-Peak Saver \$/kWh	\$0.0702	\$0.0712	\$0.0727
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$287.15	\$291.45	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.020	\$3.065	\$3.127
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.870	\$10.018	\$10.218
Electricity Usage Charge			
Peak \$/kWh	\$0.2058	\$0.2089	\$0.2131
Off-Peak \$/kWh	\$0.1047	\$0.1063	\$0.1084
CITT-3: C&I Subtransmission 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,195.45	\$1,213.40	\$1,237.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.310	\$3.360	\$3.427
Electricity Usage Charge			
Peak \$/kWh	\$0.1099	\$0.1115	\$0.1138
Off-Peak \$/kWh	\$0.0918	\$0.0932	\$0.0950
Off-Peak Saver \$/kWh	\$0.0597	\$0.0606	\$0.0618
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,195.45	\$1,213.40	\$1,237.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.310	\$3.360	\$3.427
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.620	\$9.764	\$9.960
Electricity Usage Charge			
Peak \$/kWh	\$0.1848	\$0.1876	\$0.1913
Off-Peak \$/kWh	\$0.0890	\$0.0903	\$0.0922

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **CI-TOD3-3**

Effective: **September 17, 2021**

Edition: **September 17, 2021**

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

The customer shall pay for additional equipment and software identified by SMUD meter specialists as necessary for load data collection and upload to the customer electronic system. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. *Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. **Adjustment (charge per month varies)**

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for term of waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

Excess KVAR x Waiver Rate

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Commercial Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service may be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*
CITS-3: C&I Secondary 500-999 kW						
System Infrastructure Fixed Charge	per month	\$278.60	\$282.80	\$781.65	\$1,440.30	\$2,098.90
Site Infrastructure Charge	per kW	\$3.610	\$3.664	\$4.152	\$4.566	\$4.969
Summer Peak Demand Charge	per kW	\$9.070	\$9.206	\$9.732	\$10.073	\$10.415
Non-Summer Peak	per kWh	\$0.1183	\$0.1201	\$0.1225	\$0.1241	\$0.1261
Non-Summer Off-Peak	per kWh	\$0.0958	\$0.0972	\$0.0992	\$0.1017	\$0.1040
Non-Summer Off-Peak Saver	per kWh	\$0.0919	\$0.0933	\$0.0906	\$0.0788	\$0.0673
Summer Peak	per kWh	\$0.2071	\$0.2102	\$0.2111	\$0.2084	\$0.2058
Summer Off-Peak	per kWh	\$0.1262	\$0.1281	\$0.1212	\$0.1108	\$0.1003
CITP-3: C&I Primary 500-999 kW						
System Infrastructure Fixed Charge	per month	\$287.15	\$291.45	\$297.30	\$297.30	\$297.30
Site Infrastructure Charge	per kW	\$3.020	\$3.065	\$3.127	\$3.127	\$3.127
Summer Peak Demand Charge	per kW	\$9.870	\$10.018	\$10.218	\$10.218	\$10.218
Non-Summer Peak	per kWh	\$0.1269	\$0.1288	\$0.1314	\$0.1314	\$0.1314
Non-Summer Off-Peak	per kWh	\$0.1102	\$0.1119	\$0.1141	\$0.1141	\$0.1141
Non-Summer Off-Peak Saver	per kWh	\$0.0702	\$0.0712	\$0.0727	\$0.0727	\$0.0727
Summer Peak	per kWh	\$0.2058	\$0.2089	\$0.2131	\$0.2131	\$0.2131
Summer Off-Peak	per kWh	\$0.1047	\$0.1063	\$0.1084	\$0.1084	\$0.1084
CITT-3: C&I Subtransmission 500-999 kW						
System Infrastructure Fixed Charge	per month	\$1,195.45	\$1,213.40	\$1,237.65	\$1,237.65	\$1,237.65
Site Infrastructure Charge	per kW	\$3.310	\$3.360	\$3.427	\$3.427	\$3.427
Summer Peak Demand Charge	per kW	\$9.620	\$9.764	\$9.960	\$9.960	\$9.960
Non-Summer Peak	per kWh	\$0.1099	\$0.1115	\$0.1138	\$0.1138	\$0.1138
Non-Summer Off-Peak	per kWh	\$0.0918	\$0.0932	\$0.0950	\$0.0950	\$0.0950
Non-Summer Off-Peak Saver	per kWh	\$0.0597	\$0.0606	\$0.0618	\$0.0618	\$0.0618
Summer Peak	per kWh	\$0.1848	\$0.1876	\$0.1913	\$0.1913	\$0.1913
Summer Off-Peak	per kWh	\$0.0890	\$0.0903	\$0.0922	\$0.0921	\$0.0921

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

I. Applicability

This Rate Schedule CI-TOD4 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all agricultural, commercial and industrial (C&I) accounts with monthly maximum demand of 1,000 kW or greater for three consecutive months during the preceding 12 months. Accounts will remain on this rate schedule unless monthly maximum demand falls below 1,000 kW for 12 consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month. This schedule is also mandatory for accounts with contract capacity of 1,000 kW or greater.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_L, GUP_L, GUT_L) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-4, CITP-4, and CITT-4) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.450	\$4.540	\$4.608
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1194	\$0.1218	\$0.1236
Off-Peak <i>\$/kWh</i>	\$0.0946	\$0.0965	\$0.0979
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.450	n/a	\$4.608
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1860	n/a	\$0.1925
On-Peak <i>\$/kWh</i>	\$0.1484	n/a	\$0.1537
Off-Peak <i>\$/kWh</i>	\$0.1187	n/a	\$0.1229
GUP_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.270	\$4.350	\$4.415
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1136	\$0.1159	\$0.1176
Off-Peak <i>\$/kWh</i>	\$0.0885	\$0.0903	\$0.0917
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.270	n/a	\$4.415
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1533	n/a	\$0.1587
On-Peak <i>\$/kWh</i>	\$0.1395	n/a	\$0.1444
Off-Peak <i>\$/kWh</i>	\$0.1083	n/a	\$0.1122
GUT_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	\$322.70	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.400	\$3.460	\$3.512
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1095	\$0.1117	\$0.1134
Off-Peak <i>\$/kWh</i>	\$0.0865	\$0.0882	\$0.0895
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	n/a	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.400	n/a	\$3.512
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1489	n/a	\$0.1541
On-Peak <i>\$/kWh</i>	\$0.1309	n/a	\$0.1355
Off-Peak <i>\$/kWh</i>	\$0.1068	n/a	\$0.1105

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

B. Restructured Commercial Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-4: C&I Secondary 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,181.05	\$1,198.75	\$2,319.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.630	\$4.699	\$4.876
Electricity Usage Charge			
Peak \$/kWh	\$0.1230	\$0.1248	\$0.1284
Off-Peak \$/kWh	\$0.0996	\$0.1011	\$0.1048
Off-Peak Saver \$/kWh	\$0.0939	\$0.0953	\$0.0833
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,181.05	\$1,198.75	\$2,319.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.630	\$4.699	\$4.876
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$3.350	\$3.400	\$6.937
Electricity Usage Charge			
Peak \$/kWh	\$0.1905	\$0.1934	\$0.2048
Off-Peak \$/kWh	\$0.1208	\$0.1226	\$0.1143
CITP-4: C&I Primary 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$204.50	\$207.55	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.300	\$4.365	\$4.400
Electricity Usage Charge			
Peak \$/kWh	\$0.1205	\$0.1223	\$0.1295
Off-Peak \$/kWh	\$0.0965	\$0.0979	\$0.1051
Off-Peak Saver \$/kWh	\$0.0832	\$0.0845	\$0.0679
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$204.50	\$207.55	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.300	\$4.365	\$4.400
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$4.930	\$5.004	\$10.218
Electricity Usage Charge			
Peak \$/kWh	\$0.1733	\$0.1759	\$0.1997
Off-Peak \$/kWh	\$0.1078	\$0.1094	\$0.1014
CITT-4: C&I Subtransmission 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,081.85	\$1,098.10	\$1,178.85
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.410	\$3.461	\$3.479
Electricity Usage Charge			
Peak \$/kWh	\$0.1155	\$0.1173	\$0.1228
Off-Peak \$/kWh	\$0.0933	\$0.0947	\$0.0998
Off-Peak Saver \$/kWh	\$0.0854	\$0.0867	\$0.0774
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,081.85	\$1,098.10	\$1,178.85
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.410	\$3.461	\$3.479
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$3.210	\$3.258	\$6.636
Electricity Usage Charge			
Peak \$/kWh	\$0.1568	\$0.1592	\$0.1699
Off-Peak \$/kWh	\$0.1074	\$0.1090	\$0.1050

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar/Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate shall be determined by the voltage level at which service is provided according to the following:

1. *Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. **Adjustment (charge per month varies)**

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for the term of the waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

Excess KVAR x Waiver Rate

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Commercial Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is less than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is more than 34 days	
Price changes within billing period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

IX. Transition Schedule

Season and Charge Component		Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*
CITS-4: C&I Secondary 1000+ kW						
System Infrastructure Fixed Charge	per month		\$1,181.05	\$1,198.75	\$2,319.35	\$3,496.60
Site Infrastructure Charge	per kW		\$4.630	\$4.699	\$4.876	\$4.969
Summer Peak Demand Charge	per kW		\$3.350	\$3.400	\$6.937	\$10.415
Non-Summer Peak	per kWh		\$0.1230	\$0.1248	\$0.1284	\$0.1294
Non-Summer Off-Peak	per kWh		\$0.0996	\$0.1011	\$0.1048	\$0.1064
Non-Summer Off-Peak Saver	per kWh		\$0.0939	\$0.0953	\$0.0833	\$0.0686
Summer Peak	per kWh		\$0.1905	\$0.1934	\$0.2048	\$0.2124
Summer Off-Peak	per kWh		\$0.1208	\$0.1226	\$0.1143	\$0.1033
CITP-4: C&I Primary 1000+ kW						
System Infrastructure Fixed Charge	per month		\$204.50	\$207.55	\$297.30	\$297.30
Site Infrastructure Charge	per kW		\$4.300	\$4.365	\$4.400	\$4.400
Summer Peak Demand Charge	per kW		\$4.930	\$5.004	\$10.218	\$10.218
Non-Summer Peak	per kWh		\$0.1205	\$0.1223	\$0.1295	\$0.1295
Non-Summer Off-Peak	per kWh		\$0.0965	\$0.0979	\$0.1051	\$0.1051
Non-Summer Off-Peak Saver	per kWh		\$0.0832	\$0.0845	\$0.0679	\$0.0678
Summer Peak	per kWh		\$0.1733	\$0.1759	\$0.1997	\$0.1997
Summer Off-Peak	per kWh		\$0.1078	\$0.1094	\$0.1014	\$0.1014
CITT-4: C&I Subtransmission 1000+ kW						
System Infrastructure Fixed Charge	per month		\$1,081.85	\$1,098.10	\$1,178.85	\$1,237.65
Site Infrastructure Charge	per kW		\$3.410	\$3.461	\$3.479	\$3.427
Summer Peak Demand Charge	per kW		\$3.210	\$3.258	\$6.636	\$9.960
Non-Summer Peak	per kWh		\$0.1155	\$0.1173	\$0.1228	\$0.1260
Non-Summer Off-Peak	per kWh		\$0.0933	\$0.0947	\$0.0998	\$0.1030
Non-Summer Off-Peak Saver	per kWh		\$0.0854	\$0.0867	\$0.0774	\$0.0666
Summer Peak	per kWh		\$0.1568	\$0.1592	\$0.1699	\$0.1775
Summer Off-Peak	per kWh		\$0.1074	\$0.1090	\$0.1050	\$0.0987

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

I. Applicability

This Rate Schedule EAPR applies to customers receiving service under residential or Commercial & Industrial rates who meet specific eligibility requirements.

II. Eligibility for Residential Customers

Eligibility for the Energy Assistance Program (EAPR) is determined by the following:

- A. The total gross household income must conform to the Income Guidelines as specified on the application;
- B. The customer must not be claimed as a dependent on another person's income tax return; and
- C. The service address on the application must be the customer's primary residence.

III. Discount for Residential Customers

Eligible residential customers will receive a discount based on qualifying federal poverty level income guidelines beginning as early as the first full bill cycle in 2021. The EAPR discount will include two components:

1. A \$10 System Infrastructure Fixed Charge discount per month; and
2. An additional discount is applied as a 100% reduction in the electricity usage cost per kilowatt hour up to the maximum discount according to the following income guidelines:

Federal Poverty Level	2021 Maximum Electricity Usage Discount
0-50%	\$60
>50 to 100%	\$32
>100 to 150%	\$10
>150 to 200%	\$0

IV. Eligibility for Nonprofit Organizations

To be eligible for EAPR the nonprofit organization must meet the following requirements:

- A. The organization's qualifying site takes service directly from SMUD; and
- B. The organization meets the qualifications for a nonprofit public or private organization, as specified on the application; and
- C. The organization operates the qualifying site as residential unit(s) whose residents meet the EAPR income guidelines.
 1. The primary function of the site shall be to provide a home (sleeping quarters) for low-income residents who would otherwise meet the residential EAPR guidelines defining low-income if permanently residing in a residence.
 2. In support of the primary function that is provided by the nonprofit organization, associated facilities that provide daytime services for the homeless (such as personal hygiene facilities, laundry facilities, kitchen and/or dining facilities, etc.) may also qualify for the discount. At least 75 percent of the facility's square footage must be directly related to meeting these functions.

An energy survey of the residential unit(s) is recommended at the time of being placed on this program and implementation of recommended cost-effective energy efficiency measures is encouraged.

V. Discount for Nonprofit Organization

All eligible non-profit organization accounts on a residential rate will receive the maximum residential discount.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

Eligible commercial customers will receive discounts as follows:

- A. All eligible commercial customers will receive a discount of 15 percent of the Electricity Usage Charge (kWh), Maximum Demand Charge (kW), Site Infrastructure Charge (kW), Summer Super Peak Demand Charge (kW), and Summer Peak Demand Charge (kW) each billing period.
- B. The Commercial & Industrial rate schedule CI-TOD1 System Infrastructure Fixed Charge will receive a discount of 35 percent each billing period.
- C. The Commercial & Industrial rate schedules CI-TOD2, CI-TOD3, and CI-TOD4 System Infrastructure Fixed Charge will receive a 15 percent discount applied each billing period.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

- A. **Hydro Generation Adjustment (HGA).** Refer to Rate Schedule 1-HGA.

VII. Conditions of Service

A. Application

To qualify for EAPR, the customer must complete a SMUD application and submit requested supporting documents. Applications are processed by SMUD or SMUD's designated agent.

Residential applications are available at SMUD's website, www.smud.org, or by calling SMUD customer service at 1-888-742-7683.

Nonprofit organizations must provide a copy of a valid determination or ruling letter from the Internal Revenue Service attesting to their charitable nonprofit status. Nonprofit Organization applications are available by calling SMUD customer service at 1-888-742-7683.

B. Verification

Upon request, applicants shall provide proof, satisfactory to SMUD or its designated agent, that they meet the eligibility requirements. Failure to provide proof as requested will be considered just cause for denial to enroll in EAPR. It is the customer's responsibility to immediately notify SMUD or its designated agent when eligibility requirements change to the extent that the applicant no longer qualifies for this program. Applicants served under this program may be subject to annual review and/or verification. Any intent to defraud SMUD will result in rebilling of the applicant's bill and removal from EAPR. SMUD reserves the right to take appropriate legal action as warranted.

VIII. Billing

The effective date of EAPR will be the beginning of the billing period in which the request is approved. If participation is terminated, the effective termination date will be the beginning of the billing period in which the request is received or the cancellation date. The maximum electricity usage discount will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The discount may be reflected on the customer's bill with a rate-based identifier code or line item description. The monthly System Infrastructure Fixed Charge discount will be prorated for bill periods shorter than 27 days as shown in the table below.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

Economic Development Rate Schedule EDR

I. Applicability

This Rate Schedule EDR is available to qualifying commercial customers locating, expanding, or retaining business in SMUD's service territory with a maximum demand of at least 300 kW on a single meter that meet all eligible criteria.

II. Eligibility

- A. Eligible customers are those taking service under Rate Schedules CI-TOD2, CI-TOD3 or CI-TOD4.
- B. Third party verification by a leading Sacramento area economic development organization will validate the legitimacy of the attraction, retention or expansion effort. The following criteria may be considered in the decision process:
 1. Alternative locations under consideration (within and outside of California)
 2. Workforce requirements
 3. Other tax or cash incentives
 4. Logistical requirements
 5. Infrastructure or site improvement costs
 6. Timeline for creating new load and jobs

III. Pricing Structures

- A. Eligible customers have two options (either Option A or B) to receive a reduction of the System Infrastructure Fixed Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and electricity usage charges on their bill, based on the table below.

<i>Economic Development Discount</i>										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Option A	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%	4.0%	3.0%	2.0%	1.0%
Option B	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%

- B. Eligible customers locating in areas of high unemployment and poverty as determined by the Disadvantaged Community designation under the California Office of Environmental Health and Hazard Assessment have two options (either Option C or D) to receive a reduction of the System Infrastructure Fixed Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and electricity usage charges on their bill, based on the table below.

<i>Disadvantaged Communities Economic Development Discount</i>										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Option C	8.0%	8.0%	8.0%	8.0%	8.0%	6.5%	5.0%	3.5%	2.0%	0.5%
Option D	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%

IV. Conditions of Service

- A. Customers must execute an Economic Development Rate (EDR) Option Agreement for ten years commencing on the agreement effective date.

**Economic Development
Rate Schedule EDR**

- B.** New customers must apply for the EDR option prior to commencement of service with SMUD. Temporary service is not eligible for the EDR option. Applicants will have 12 months from the agreement date to reach the maximum demand of at least 300 kW load requirement. The effective start date for the EDR for new customers is the first billing period after three consecutive months with a maximum demand of at least 300 kW.
- C.** Existing customers must apply for the EDR option prior to the installation of new load with only additional load qualifying for the EDR. Existing customers specify in the Economic Development Rate Option Agreement the date when the new load will be added. The effective start date of the EDR is the first billing period following the specified date of load addition.
- D.** Retention customers will require the execution of a certificate by a company executive and/or owner certifying that the company is exploring other locations and electricity costs are a factor in its decision to do business in a location. The certification requires review and verification by a senior executive of a leading Sacramento area economic development organization. Retention customers specify in the Economic Development Rate Option Agreement the date when the existing load will be retained with only the portion of load deemed likely to relocate or cease operations qualifying for the EDR. The effective start date is the first billing period with the EDR following the specified date of the retained load.

(End)

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Renewable Energy Bill Credit
Rate Schedule RBC

I. Applicability

This Rate Schedule applies to residential master-metered customers who have an electrical generation facility on their premise that is fueled by a renewable fuel source. A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- photovoltaic
- wind
- biomass
- solar thermal
- geothermal
- fuel cells using renewable fuels
- small hydroelectric
- digester gas
- municipal solid waste conversion
- landfill gas
- ocean wave
- ocean thermal
- tidal current

Small hydroelectric generation facilities will not qualify for this Rate Schedule if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this Rate Schedule if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

II. Conditions of Service

A. General Eligibility Requirements

The following are requirements for eligibility under this Rate Schedule:

1. The generation facility must be located entirely on the customer's premise; and
2. The generation facility must operate in parallel with SMUD's distribution facilities at the secondary voltage level; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The generation facility's kilowatt hour generating capacity shall not exceed the electrical load's average maximum demand for the prior twelve (12) month period at the time of interconnection; and
5. The generation facility is located at a distinct single metering point separate from the electrical load; and
6. Both the electrical load and the generation facility are on the same distribution feeder; and
7. The generating capacity does not exceed a maximum of 1,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

B. Qualifying Accounts and Customer-of-Record Requirements

Any customer taking service under this Rate Schedule must have a generation meter to establish a generator account and an electrical load meter to establish a benefiting account.

¹. See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

DRAFT
Renewable Energy Bill Credit
Rate Schedule RBC

Both accounts must be the same customer-of-record.

C. Generator Account

A generator account is the account that consists of a renewable electrical generation facility interconnected with SMUD behind a revenue grade meter. The generator account must not service any load other than what is necessary for the operation of the renewable electrical generation facility.

Any load used by the generation facility will apply to offset any generation produced by the generation facility. In the event there is an insufficient amount of load used by the generation facility to be offset by the generation, SMUD reserves the right to bill for the electricity used.

D. Benefiting Account

A benefiting account is an account that is interconnected with and takes service from SMUD behind a meter. A benefiting account cannot benefit from more than one generator account.

III. Renewable Energy

Electricity provided from the generator account to SMUD shall be priced at the applicable Feed-In Tariff price in accordance with the methodology set forth in the Feed-In Tariff for Distributed Generation Rate Schedule (FIT). The price will be posted on the SMUD website.

This price will not change in the event of changes in the customer-of-record on the account, the ownership of the generation facility, and/or ownership of the property. To take service under this Rate Schedule, the owner of the generation facility shall execute a contract with SMUD. The contract shall be offered for durations of either ten (10) or fifteen (15) years at the option of the customer. The customer must transfer all renewable energy attributes to SMUD associated with this generation facility during the term of the contract.

IV. Crediting of Renewable Energy

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days. Both the generation account and benefiting account will be placed on the same billing period.

- A.** All charges of the generator account and the benefiting account must be paid monthly. This includes, without limitation, the System Infrastructure Fixed Charge, Electricity Usage charges, Maximum Demand Charge, Summer Peak Demand Charge, Summer Super Peak Demand Charge, Site Infrastructure Charge, program fees, surcharges and taxes.
- B.** All of the electricity output from the generation facility will post on the benefiting account’s bill as a renewable energy bill credit.
- C.** Under no circumstances will the renewable energy bill credits exceed the amount of electricity usages charges billed within a month.

V. Metering

A. Metering Requirement for the Generator Account

The generator account must be metered using a revenue-grade interval meter capable of measuring the renewable electrical generation facility’s output in fifteen minute increments or smaller. The customer is responsible for all costs for the provisioning and installation of the meter.

In the event the generator account is found to have load that is not solely related to the renewable electrical generation facility, SMUD reserves the right to require the customer to install a bi-directional SMUD meter and a generation output meter. The customer will be responsible for installing a meter socket for the generation output meter and provide SMUD unrestricted access to both the bi-directional meter and the generation output meter. The customer is responsible for reimbursing SMUD for all expenses associated with this metering requirement.

DRAFT
Renewable Energy Bill Credit
Rate Schedule RBC

B. Telemetry Requirement for the Generator Account

Customers operating under this schedule may, at SMUD's sole discretion, be required to pay for the installation of telemetry if telemetry is determined necessary as part of the interconnection review.

C. Metering Requirement for the Benefiting Account

The benefiting account must be metered in accordance with the applicable rate that would otherwise apply as if the benefiting account was not taking service under this Rate Schedule.

VI. Special Billing Conditions

A. Generator Account Subject to Charges

The generator account is subject to charges each billing period such as, but not limited to, Electricity Usage Charges, a System Infrastructure Fixed Charge, Maximum Demand Charges, Summer Peak Demand Charges, Summer Super Peak Demand Charges, and Site Infrastructure Charges, program fees, surcharges and taxes as identified in the generator account's applicable Rate Schedule.

B. Benefiting Account and Rate Treatment

Each benefiting account will remain on the otherwise applicable Rate Schedule for residential master-metered service.

C. Ineligible Rate Options

Customers taking service on this Rate Schedule are not eligible to take service on Rate Schedules NEM1 or SSR.

(End)

DRAFT
Temporary Service
Rule and Regulation 13

I. Conditions for Temporary Service

SMUD will furnish temporary service to operations of a speculative nature or questionable permanency if the applicant for temporary service:

1. Pays to SMUD, in advance or as SMUD may direct, the estimated cost to SMUD of installing and removing all facilities specifically required for such temporary service; and
2. Establishes credit pursuant to Rule and Regulation 6.

SMUD reserves the right to charge a temporary service customer for any additional construction work needed solely for the continuation of temporary service, or to refuse service if such service would, in SMUD's judgment, prove a hardship or hazard to it or its customers.

There shall be no connection of customer-owned generation facilities under this rule.

II. Refund of Temporary Charges

Within three years of the date when service was first delivered, service will be considered permanent and payments made in excess of delinquent meter and service charges shall be refunded without interest when a customer served under this rule has requested a refund of temporary charges, and has:

1. Installed sewer, water, and foundation; or
2. Operated the same or greater electrical load originally installed for a period of 36 consecutive months from the date when service was first delivered under this rule.

(End)

Rates, Rules and Regulations Effective in 2022

DRAFT

Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

	<u>Effective Date</u>	<u>Sheet Number</u>	<u>Page Number</u>
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DWS Distribution Wheeling Service	Mar 1, 2022	DWS-1-2	10
EAPR Energy Assistance Program Rate.....	Jan 1, 2022	EAPR-1-2	12
GS-TDP General Service Temperature Dependent Pricing and Economic Retention	Mar 1, 2022	GS-TDP-1-4	14
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Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

DRAFT
Agricultural Service
Rate Schedule AG

I. Applicability

This Rate Schedule AG applies to single- or three-phase nonresidential agricultural service, delivered at standard voltages designated by SMUD as available at the customer's premises. The electricity must be for pumping loads where a preponderance of the load is devoted to agricultural purposes such as farm lighting, feed choppers, milking machines, heating for incubators, brooders, and other farm uses; drainage pumping loads where a preponderance of the area drained is agricultural; and irrigation pumping loads for nonagricultural purposes where the entire loads, except for minor incidental uses, are devoted to such pumping.

This schedule is mandatory for agricultural accounts with monthly maximum demand that does not exceed 499 kW for three or more consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Firm Service Rate

A. Small Agricultural Service, Nondemand Rates – ASN

This rate applies to agricultural accounts having a monthly maximum demand of 30 kW or less. If the account does not have a meter that registers demand, and monthly usage is at least 12,000 kWh for three consecutive months, a demand meter will be installed. Whenever monthly maximum demand exceeds 30 kW for three consecutive months, the customer will be billed on the applicable demand rate. To return to the nondemand rate, the account's monthly maximum demand must fall below 31 kW and usage must be below 12,000 kWh for 12 consecutive months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
ASN			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$12.40	\$12.60	\$12.85
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1378	\$0.1398	\$0.1428
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$12.60	\$12.85
Electricity Usage Charge	n/a		
All day <i>\$/kWh</i>		\$0.1534	\$0.1564

DRAFT
Agricultural Service
Rate Schedule AG

B. Large Agricultural Service, Demand Rates – ASD

This rate applies to agricultural accounts having a monthly maximum demand greater than 30 kW but less than 499 kW for three consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month. The customer will be billed on the demand-metered rate until the demand falls below 31 kW and energy is less than 12,000 kWh for 12 consecutive months before being returned to the ASN Rate.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
ASD			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.80	\$29.25	\$29.80
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>			
First 30kW	No Charge	No Charge	No Charge
Additional kW per month	\$2.850	\$2.893	\$2.951
Electricity Usage Charge			
Base Usage <i>8,750 kWh per month</i>	\$0.1526	\$0.1549	\$0.1580
Base Usage Plus <i>kWh over 8,750 per month</i>	\$0.1198	\$0.1216	\$0.1240
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$29.25	\$29.80
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>			
First 30kW	n/a	No Charge	No Charge
Additional kW per month	n/a	\$2.893	\$2.951
Electricity Usage Charge			
Base Usage <i>8,750 kWh per month</i>	n/a	\$0.1484	\$0.1514
Base Usage Plus <i>kWh over 8,750 per month</i>	n/a	\$0.1074	\$0.1095

C. Small Agricultural Optional Time-of-Day – AON

This optional rate is for small agricultural accounts having a monthly maximum demand of 30 kW or less. Customers transferring to the small agricultural Time-of-Day Rate must remain on the rate for a minimum of four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
AON			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$16.65	\$16.90	\$17.25
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	\$0.1585	\$0.1609	\$0.1641
Off-peak <i>\$/kWh</i>	\$0.1351	\$0.1371	\$0.1399
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$16.90	\$17.25
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	n/a	\$0.2332	\$0.2379
Off-peak <i>\$/kWh</i>	n/a	\$0.1254	\$0.1279

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Agricultural Service
Rate Schedule AG

D. Large Agricultural Optional Time-of-Day – AOD

This optional rate is for large agricultural accounts with demand greater than 30 kW and less than 499 kW. Customers transferring to the agricultural Time-of-Day Rate must remain on the rate for a minimum of four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
AOD			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$100.25	\$101.75	\$103.80
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$2.840	\$2.883	\$2.940
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	\$0.1578	\$0.1602	\$0.1634
Off-peak <i>\$/kWh</i>	\$0.1340	\$0.1360	\$0.1388
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>		\$101.75	\$103.80
Maximum Demand Charge <i>\$ per monthly max kW</i>		\$4.030	\$4.110
Electricity Usage Charge			
On-peak <i>\$/kWh</i>		\$0.2478	\$0.2528
Off-peak <i>\$/kWh</i>		\$0.1322	\$0.1348

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges:

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu

A. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

DRAFT
Agricultural Service
Rate Schedule AG

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges and Site Infrastructure Charges, as well as Electricity Usage and Maximum Demand Charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

B. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

C. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

D. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

V. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate shall be determined by the voltage level at which service is taken according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as "Primary" or "Subtransmission."

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer's monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer's monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

DRAFT
Agricultural Service
Rate Schedule AG

C. Power Factor Adjustment

1. Adjustment (charge per month varies)

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective October 1, 2021 \$0.0123

Effective March 1, 2022 \$0.0125

Effective January 1, 2023 \$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective October 1, 2021 \$0.3257

Effective March 1, 2022 \$0.3306

Effective January 1, 2023 \$0.3372

D. Time-of-Day Billing Periods

Winter season is from November 1 through April 30. Summer season is from May 1 through October 31.

Winter On-Peak	Weekdays between 7:00 a.m. and 10:00 a.m. and 5:00 p.m. and 8:00 p.m.
Summer On-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
Off-Peak	All other hours, including holidays shown below.

DRAFT
Agricultural Service
Rate Schedule AG

Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VI. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The Electricity Usage allowances, System Infrastructure Fixed Charge, Maximum Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

I. Applicability

This Rate Schedule CHP is optional for customers who wish to sell all excess generation to SMUD from an eligible Combined Heat and Power (CHP) generation facility with a capacity of 3 MW or less operating in parallel with SMUD's distribution system, or with a capacity of 20 MW or less operating in parallel with SMUD's subtransmission system. The facility must continuously meet the qualifications in Section IV General Conditions. This schedule applies solely to the excess generation delivered to SMUD.

II. Pricing Structure

Under this schedule, SMUD will pay the customer the applicable price for metered energy delivered by the eligible CHP facility during the time periods specified in this schedule.

A. Excess Generation Prices

The CHP excess generation prices will be posted at SMUD's website, www.smud.org. Prices will be differentiated by delivery voltage, season and time-of-day. CHP excess generation prices will be reset each January 1 and apply for that calendar year to all CHP excess generation delivered to SMUD, regardless of the date of the CHP commissioning and interconnection to SMUD's system, or the effective date of the Power Purchase Agreement (PPA) and Interconnection Agreement.

The CHP excess generation prices reflect SMUD's underlying avoided costs for procurement and delivery of comparable power during the specified terms and time periods. The avoided cost is made up of the following components:

- Market Energy Price
- Losses by voltage level
- Transmission and Distribution

SMUD will typically pay for CHP excess generation based on the voltage at the point of delivery to the SMUD system. However, to the extent that SMUD must step up the excess generation to a higher voltage level in order to serve its customers, the pricing for the excess CHP generation will be based on the higher voltage level.

B. Time-of-Delivery Periods

Season	Months	Super Peak	On Peak	Off Peak
Summer	June - Sept	2:00 to 8:00 p.m. Mon – Sat except holidays	6:00 a.m. to 2:00 p.m. & 8:00 p.m. to 10:00 p.m. Mon - Sat except holidays	All other hours
Fall & Winter	Oct - Feb			
Spring	Mar - May			

Off-peak pricing shall apply during the following holidays:

Holiday	Month	Date
New Year's Day	January	1
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

III. Charges

A. Reserved Capacity Charge

The customer shall pay a monthly Reserved Capacity Charge to compensate SMUD for standing ready to supply supplemental service, backup electricity, and other services/electricity during interruptions in the CHP facility's operation. The Reserved Capacity Charge is based on the greater of the following:

- The customer's Maximum Anticipated Demand or actual monthly demand, if higher, multiplied by the Reserved Capacity Rate per kW shown below; or
- The Generator Installed Capacity of the CHP facility multiplied by the Reserved Capacity Rate per kW shown below.

Reserved Capacity Rate <i>per kW</i>	Secondary	Primary	Subtransmission
Effective March 1, 2022	\$7.278	\$7.278	\$6.993
Effective January 1, 2023	\$7.423	\$7.423	\$7.133

1. Maximum Anticipated Demand

The initial maximum anticipated demand will be the customer's maximum monthly demand in the prior 18 months at the time the PPA is executed.

2. Generator Installed Capacity

The Generator Installed Capacity of the facility will be set forth in the PPA.

3. Reset of Reserved Capacity Basis

If, at any time, the customer's actual monthly demand exceeds the Generator Installed Capacity of the CHP facility, the demand used to calculate the Reserved Capacity Charge will be reset to use the newly established demand as the basis for the charge.

B. Data Communications Charges

The customer shall be responsible for procuring and maintaining any communication link required by SMUD for retrieving meter data. Ongoing data communication charges paid by SMUD on behalf of the customer will be passed through to the customer and will appear on the customer's monthly SMUD bill.

C. Other Charges

SMUD will continue to bill for all appropriate charges under the applicable rate schedule for SMUD supplied power to the customer. These charges include without limitation System Infrastructure Fixed Charge, Electricity Usage charges, surcharges, and taxes. Site Infrastructure Charges and Summer Peak Demand Charges are applicable if the sum of these two charges is greater than the Reserved Capacity Charge. Each month, the Reserved Capacity Charge will be compared to the sum of the Site Infrastructure Charge plus any Summer Peak Demand Charge. On the monthly bill, the customer will be charged the greater of the two calculations, but not both. The monthly bill will also include applicable metering and data communications charges.

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

IV. Conditions of Service

A. Eligible CHP Facility

To be eligible for this schedule, the CHP facility shall maintain without interruption certification by the California Energy Commission (CEC) as outlined in the CEC's "Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act - Public Utilities Code, Section 2840 *Et Seq.*" CHP systems placed into operation before January 1, 2008 are not eligible for this schedule.

B. Territory

The CHP facility must be located entirely within SMUD's service territory.

C. Required Contract

An eligible CHP facility operating under this schedule shall execute a Power Purchase Agreement (PPA) with SMUD. The PPA shall be offered for contract durations of up to 10 years at the option of the customer.

D. Participation in Other SMUD Programs

An eligible CHP facility operating under this schedule may not also obtain benefits for the same facility from any of the following:

1. A separate contract with SMUD for deliveries from the same facility; or
2. Incentives from SMUD under customer programs implemented in compliance with SB1 requirements or similar program; or
3. The net metering option for energy deliveries from the same facility.

E. Electrical Interconnection

An eligible CHP facility under this schedule shall be interconnected within SMUD's service territory and shall be required to comply with SMUD's Rule and Regulation 21 process for interconnection and execute an Interconnection Agreement with SMUD. Facilities not meeting the Rule and Regulation 21 requirements will **not** be eligible for service. Any costs for system upgrades and facilities required for interconnection are the responsibility of the customer.

F. Metering Requirements

The eligible CHP facility operating under this schedule shall comply with all applicable rules in installing, at the customer's expense, a bi-directional time-of-use meter appropriate for excess sale agreements, that can be read daily by electronic means acceptable to SMUD. SMUD will pay for and install a gross output meter to measure the generator output and provide for SMUD data requirements. The customer shall provide and pay for the meter socket and cabinet, and all required current transformers and potential transformers.

G. Energy and Green Attributes

The customer shall, in accordance with the terms and conditions of the PPA, provide and convey to SMUD excess energy produced by the eligible CHP facility net of all station use and any and all site host load. Such conveyance shall include all related Green Attributes.

(End)

Distribution Wheeling Service Rate Schedule DWS

I. Applicability

This Rate Schedule DWS is optional for customers requesting Distribution Wheeling Service. SMUD may, at its sole discretion, provide Distribution Wheeling Service to Independent Power Producers and Cogenerators, also referred to as Merchant Generators, within SMUD territory, who establish a need for this service. Wheeling service requests will be evaluated on a case by case basis and may be limited by availability of distribution system capacity. This rate has been developed for wholesale power transactions and SMUD will not wheel non-SMUD power to its retail customers under this rate.

This Rate Schedule DWS is available to entities owning generating facilities that meet the following conditions:

- The entity's generating facility is connected to SMUD's distribution system; and
- The entity has a power purchase (offtake) agreement for the output of the generating facility with an entity other than SMUD; and
- Power delivery under the power purchase agreement occurs at a location outside of the SMUD system.

Under this service, the power from the associated generating facility will be wheeled (transferred) across SMUD's distribution system from the point of interconnection to SMUD's distribution system (Interconnection Point) to SMUD's bulk power system. Entities taking service under this rate schedule will also be required to take Transmission Wheeling Service from SMUD under the SMUD Open Access Transmission Tariff (OATT).

Service under this schedule is on a first-come, first-served basis and is available unless the usage of these wheeling facilities would be detrimental to SMUD. This schedule is available for interconnection of the qualified generating facility to the SMUD distribution system, wherever that may occur within the SMUD service territory.

II. Rates

Distribution Wheeling Charge

Effective March 1, 2022	\$10.934	\$1.703
Effective January 1, 2023	\$11.152	\$1.737

* includes all path charges to SMUD's bulk power system

III. Conditions of Service

A. Application for Service

Any entity requesting service under this rate schedule must submit an application for Distribution Wheeling Service. Application for such service is available at the SMUD website, www.smud.org.

B. Required Service Contract

The entity taking wheeling service under the rate schedule shall execute a Distribution Wheeling Agreement (DWA) in accordance with SMUD Policy and Procedure 8-05.

C. Reservation Deposit

The entity requesting service under this rate schedule will be required to submit a deposit equal to one month of service under this rate. The deposit will be refundable up until the time that the entity commits to service by execution of the DWA. Once the DWA is executed, the reservation deposit becomes a nonrefundable payment for the first month of service under the rate schedule.

D. Term

Applicant must specify, at the time of application, the start date for the requested service. Applicant must also specify the duration that is requested for service. SMUD will accept applications for service up to 20 years.

E. Application Under SMUD'S OATT

Applicants must also make application for Transmission Service under SMUD's Open Access Transmission Tariff.

DRAFT
Distribution Wheeling Service
Rate Schedule DWS

F. Definitions

The following definitions apply to this schedule:

1. Applicant: The entity requesting service under this rate schedule.
2. Distribution Wheeling: The transfer of Merchant Generator power at 12 kV, 21 kV, or 69 kV for delivery to a third party outside SMUD service territory.

G. Electrical Interconnection

Applicant must also make a request for interconnection that complies with SMUD's Rule and Regulation 21 process for interconnection and must meet the requirements of Rule and Regulation 21, which include executing an Interconnection Agreement with SMUD. Any resources *not* meeting the Rule and Regulation 21 requirements will not be eligible for service under this schedule.

H. Metering Requirements

Distributed generation resources receiving service under this schedule shall comply with all applicable rules in installing metering equipment appropriate for full output monitoring agreements, and which can be read daily by electronic means acceptable to SMUD. The customer shall be responsible for procuring and maintaining any communication link required by SMUD for retrieving meter data.

IV. Line Losses

Merchant Generators taking service under this rate schedule will be assessed a line loss factor. Line losses will be applied as the electricity transitions from one voltage level to another. The line losses by voltage level are as follows:

<u>Voltage Level</u>	<u>Loss Factor</u>
12/21kV	4.06%
69kV	1.53%

SMUD reserves the right to update the line loss factor annually on January 1.

Line losses will be applied to the amount of generated electricity that is measured at the point of interconnection between the Merchant Generator's facility and SMUD's electrical system.

(End)

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

I. Applicability

This Rate Schedule EAPR applies to customers receiving service under residential or Commercial & Industrial rates who meet specific eligibility requirements.

II. Eligibility for Residential Customers

Eligibility for the Energy Assistance Program (EAPR) is determined by the following:

- A. The total gross household income must conform to the Income Guidelines as specified on the application;
- B. The customer must not be claimed as a dependent on another person's income tax return; and
- C. The service address on the application must be the customer's primary residence.

III. Discount for Residential Customers

Eligible residential customers will receive a discount based on qualifying federal poverty level income guidelines. The EAPR discount will include two components:

1. A \$10 System Infrastructure Fixed Charge discount per month; and
2. An additional discount is applied as a 100% reduction in the electricity usage cost per kilowatt hour up to the maximum discount according to the following income guidelines:

Federal Poverty Level	Maximum Electricity Usage Discount
0-50%	\$60
>50 to 100%	\$32
>100 to 150%	\$10
>150 to 200%	\$0

IV. Eligibility for Nonprofit Organizations

To be eligible for EAPR the nonprofit organization must meet the following requirements:

- A. The organization's qualifying site takes service directly from SMUD; and
- B. The organization meets the qualifications for a nonprofit public or private organization, as specified on the application; and
- C. The organization operates the qualifying site as residential unit(s) whose residents meet the EAPR income guidelines.
 1. The primary function of the site shall be to provide a home (sleeping quarters) for low-income residents who would otherwise meet the residential EAPR guidelines defining low-income if permanently residing in a residence.
 2. In support of the primary function that is provided by the nonprofit organization, associated facilities that provide daytime services for the homeless (such as personal hygiene facilities, laundry facilities, kitchen and/or dining facilities, etc.) may also qualify for the discount. At least 75 percent of the facility's square footage must be directly related to meeting these functions.

An energy survey of the residential unit(s) is recommended at the time of being placed on this program and implementation of recommended cost-effective energy efficiency measures is encouraged.

V. Discount for Nonprofit Organization

All eligible non-profit organization accounts on a residential rate will receive the maximum residential discount.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

Eligible commercial customers will receive discounts as follows:

- A. All eligible commercial customers will receive a discount of 15 percent of the Electricity Usage Charge (kWh), Maximum Demand Charge (kW), Site Infrastructure Charge (kW), Summer Peak Demand Charge (kW), and Summer Super Peak Demand Charge (kW) each billing period.
- B. The Commercial & Industrial rate schedule CI-TOD1 System Infrastructure Fixed Charge will receive a discount of 35 percent each billing period.
- C. The Commercial & Industrial rate schedules CI-TOD2, CI-TOD3 and CI-TOD4 System Infrastructure Fixed Charge will receive a 15 percent discount applied each billing period.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

- A. **Hydro Generation Adjustment (HGA).** Refer to Rate Schedule HGA.

VII. Conditions of Service

A. Application

To qualify for EAPR, the customer must complete a SMUD application and submit requested supporting documents. Applications are processed by SMUD or SMUD's designated agent.

Residential applications are available at SMUD's website, www.smud.org, or by calling SMUD customer service at 1-888-742-7683.

Nonprofit organizations must provide a copy of a valid determination or ruling letter from the Internal Revenue Service attesting to their charitable nonprofit status. Nonprofit Organization applications are available by calling SMUD customer service at 1-888-742-7683.

B. Verification

Upon request, applicants shall provide proof, satisfactory to SMUD or its designated agent, that they meet the eligibility requirements. Failure to provide proof as requested will be considered just cause for denial to enroll in EAPR. It is the customer's responsibility to immediately notify SMUD or its designated agent when eligibility requirements change to the extent that the applicant no longer qualifies for this program. Applicants served under this program may be subject to annual review and/or verification. Any intent to defraud SMUD will result in rebilling of the applicant's bill and removal from EAPR. SMUD reserves the right to take appropriate legal action as warranted.

VIII. Billing

The effective date of EAPR will be the beginning of the billing period in which the request is approved. If participation is terminated, the effective termination date will be the beginning of the billing period in which the request is received or the cancellation date. The maximum electricity usage discount will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The discount may be reflected on the customer's bill with a rate-based identifier code or line item description. The monthly System Infrastructure Fixed Charge discount will be prorated for bill periods shorter than 27 days as shown in the table below.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

General Service

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)**

I. Applicability

This Rate Schedule GS-TDP applies to single- or three-phase service, delivered at the subtransmission voltage level. The rate charged the customer shall vary depending on the maximum forecasted temperature during the summer season (June through September). SMUD is utilizing temperature-dependent pricing as an additional rate option for economic retention.

This rate schedule was closed to new participants effective January 1, 1998.

To be eligible for this schedule, customers must have met the following requirements:

1. Certify to SMUD that serving their load has become competitive as shown through evidence of viable competitive energy sources from relocation, self-generation, cogeneration, etc.;
2. Verify that electricity costs are at least 10 percent of their variable production costs; and
3. Agree to remain a full-requirements SMUD customer for a minimum period of five years. If the customer chooses to bypass SMUD before the five year period has expired, the customer shall reimburse SMUD for all cumulative savings received under the temperature-dependent pricing rate compared to the standard rate. The customer may elect to terminate SMUD service after four years, with a one-year advance notification, without penalty.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Firm Service Rate

	Effective as of March 1, 2022	Effective as of January 1, 2023
GS-TDP		
Winter Season (January - May)		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$327.55	\$334.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$0.639	\$0.652
Electricity Usage Charge		
On-peak <i>\$/kWh</i>	\$0.1134	\$0.1156
Off-peak <i>\$/kWh</i>	\$0.0810	\$0.0826
Summer Season (June - September)		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$327.55	\$334.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$0.639	\$0.652
TDP Summer Super-Peak Demand Charge (<i>\$/kW</i>)		
Per kW of maximum demand during Super-Peak Period per day if forecasted daily maximum temperature (T) for the following day is:		
"Heat Storm" if $T \geq 100^\circ$ for 2 or more consecutive days; or	\$6.577	\$6.709
"Extremely Hot" if $T \geq 100^\circ$ for a single day; or	\$6.181	\$6.305
"Very Hot" if $100^\circ > T > 95^\circ$ for a single day; or	\$1.147	\$1.170
"Mild to Hot" if $95^\circ \geq T$	No Charge	No Charge
Electricity Usage Charge		
Super-peak <i>\$/kWh</i>	\$0.1541	\$0.1572
On-peak <i>\$/kWh</i>	\$0.1355	\$0.1382
Off-peak <i>\$/kWh</i>	\$0.1019	\$0.1039

The TDP Summer Super Peak Maximum Demand Charge varies depending on the forecasted maximum temperature, based on a mutually agreed upon weather forecast source for the Sacramento area, for the following day.

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)****Minimum Demand Charge Day**

A “Minimum Demand Charge Day” may be declared on days when the forecast maximum daily temperature is greater than 95°F and less than 50 percent of SMUD’s available peaking resources are being utilized. On a “Minimum Demand Charge Day” there is no charge for super-peak TDP maximum demand.

Notification of Minimum Demand Charge Day

It is the responsibility of the customer to communicate with SMUD to determine whether the SMUD system operator has declared a “Minimum Demand Charge Day.” SMUD reserves the right to cancel a “Minimum Demand Charge Day” if necessary. Any such update will be provided to the customer no later than one hour prior to application of the TDP super-peak maximum demand charge.

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu**A. SMUD Renewable Energy Option**

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org

B. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD’s website, www.smud.org.

V. Conditions of Service**A. Type of Electric Service**

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition*1. Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (Closed to new customers)****C. Power Factor Adjustment or Waiver****1. Adjustment (charge per month varies)**

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective March 1, 2022 \$0.0125

Effective January 1, 2023 \$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective March 1, 2022 \$0.3306

Effective January 1, 2023 \$0.3372

D. Large General Service Time-of-Use Billing Periods

Winter On-Peak: October 1 - May 31	Weekdays between noon and 10:00 p.m.
Summer On-Peak: June 1 - September 30	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
Summer Super-Peak: June 1 - September 30	Weekdays between 2:00 p.m. and 8:00 p.m.
Off-Peak	All other hours, including holidays shown below.

Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

General Service

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)**

VI. Billing**A. Meter Data**

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

**Hydro Generation Adjustment
Rate Schedule HGA****I. Applicability**

This Rate Schedule HGA applies to all customers receiving retail electric service from SMUD. Annually, SMUD will calculate how the yearly variation of precipitation affects hydro generation from the Upper American River Project (UARP) and impacts the SMUD budget.

II. Conditions

- A. SMUD estimates that each inch of precipitation results in 30,000 megawatt hours (MWh) of generation.
- B. The HGA precipitation period begins April 1 of the previous year and ends on March 31 of the current year (Water Year).
- C. The actual inches of precipitation (AP) for each period shall be measured at the National Weather Service Pacific House Cooperative Observer measuring station or suitable replacement.
- D. The AP will be compared to the 50-year median (midpoint) inches of precipitation (MP) measured at Pacific House.
- E. The price of power delivered into the area designated as North Path 15 (NP15) will be used to determine the dollar impact of any excess or shortfall of energy. If NP15 is no longer available, then a suitable replacement will be used.
- F. The AP will be capped at a maximum of 80 inches per Water Year to accommodate for spill.

III. Budget Impact Determination

The following calculations will be used to determine SMUD's budget impact (BI) from precipitation variances:

A. Precipitation Variance

$$\text{Inches of Precipitation Variance } (\pm \text{IPV}) = \text{MP} - \text{AP}$$

The variance of precipitation equals the difference between the 50-year median and the actual inches of precipitation.

B. Generation Conversion

$$\pm \text{IPV} \quad \times \quad 30,000 \text{ MWh/inch} \quad = \quad \pm \text{MWh}$$

The variance of hydro generation, in megawatt hours, equals the inches of precipitation variance x 30,000 MWh/inch.

C. Calculation of Budget Effects

The market cost of energy is the simple average of the actual first quarter monthly NP15 prices as of April 1 and the second, third and fourth quarters monthly forecast NP15 prices. If NP15 is no longer available, then a suitable replacement will be used.

$$\pm \text{MWh} \quad \times \quad \text{market cost of energy } (\$/\text{MWh}) \quad = \quad \pm \text{budget impact } (\$)$$

IV. Hydro Rate Stabilization Fund

The BI will first be compared to the Hydro Rate Stabilization Fund (HRSF). In Water Years with above median precipitation, funds shall be deposited to the HRSF from Operating Revenues until the HRSF reaches a maximum of 6% of budgeted annual gross retail revenue, at which time subsequent excesses may be returned to the customer through the Hydro Generation Adjustment (HGA). In Water Years with below median precipitation, funds will be withdrawn from the HRSF and applied to Operating Revenues until the HRSF balance reaches zero, at which time the HGA will be levied as a surcharge on electricity usage.

V. Budget Impact Limitations

The BI will not exceed ± 4 percent of budgeted annual gross retail revenue.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. ____ adopted _____

Sheet No. **HGA-1**

Effective: **January 1, 2022**

Edition: **January 1, 2022**

**Hydro Generation Adjustment
Rate Schedule HGA****VI. Rate Charges**

The HGA deposits into or transfers out of the Hydro Rate Stabilization Fund will be calculated as follows:

$$\text{HRSF} - \text{BI} = \text{Calculated HRSF}$$

- A.** If Calculated HRSF is < 0

The Accountant will transfer the remaining balance of the HRSF to Operating Revenues and the HGA will be set at:

$$- \frac{\text{Calculated HRSF}}{\text{Budgeted annual retail kWh sales}} = \text{HGA}$$

- B.** If Calculated HRSF is ≥ 0 and $\leq 6 \text{ percent of budgeted annual gross retail revenue}$:

The Accountant will transfer the positive BI out of the HRSF and into Operating Revenues and transfer the negative BI into the HRSF from Operating Revenues.

- C.** If the Calculated HRSF is $> 6 \text{ percent of budgeted annual gross retail revenue}$:

The Accountant will transfer the negative BI into the HRSF from Operating Revenues up to 6 percent of budgeted annual gross retail revenue. The Board may authorize the HGA or direct the funds for another purpose. At the Board's direction, the HGA will be set at:

$$- \frac{(\text{Calculated HRSF} - 6\% \text{ of budgeted annual gross retail revenue})}{\text{Budgeted annual retail kWh sales}} = \text{HGA}$$

VII. Application

The HGA became effective July 1, 2008. The HGA is recalculated for each Water Year and will be applied to the rate schedules May 1 until April 30 of the following year.

(End)

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Outdoor Night Lighting Service
Rate Schedule NLGT

I. Applicability

This Rate Schedule NLGT applies to SMUD-owned and maintained outdoor overhead lighting service where Street Lighting Service Rate Schedule SLS does not apply. Service furnished under this schedule may be discontinued at any location where SMUD's overhead distribution facilities are relocated or converted to underground distribution facilities.

Lamps shall be supported on SMUD-owned poles that are used to carry distribution system circuits used for other SMUD purposes and shall be at locations approved by SMUD.

II. Rate

	Effective as of March 1, 2022	Effective as of January 1, 2023
NLGT		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0309

There will be a separate monthly charge for installation and maintenance of each fixture (including lamps, refractors, ballasts, photocells and other typical support equipment). These charges are based upon the installation of street lighting fixtures of a design specified by SMUD and mounted by means of varying length brackets affixed to existing wood poles that are used to carry distribution system circuits.

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Lamp Servicing and Relocations

- A. Upon receipt of notice from the customer that light fails to operate as scheduled, SMUD will, within a reasonable period of time, make the necessary repairs.
- B. SMUD will, at the customer's request, relocate existing outdoor lighting service equipment, provided the customer reimburses SMUD for the relocation cost.

V. Conditions of Service

- A. Service shall be alternating current at a frequency of approximately 60 hertz, single phase.
- B. Where new facilities are required in order to provide service for an applicant under this rate, SMUD may require a contract for service for a period not to exceed three years.
- C. Information on equipment that qualifies for this rate schedule and the associated monthly charge is available on the SMUD website, www.smud.org, or will be furnished upon request. SMUD will review this information at least annually and update as appropriate. SMUD retains the right to modify the listing of approved fixtures and lamps to accommodate changing technology or other business needs criteria.

VI. Billing

A. Connected Load

The manufacturer's rating in watts (including all auxiliary equipment) will be used as connected load.

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Outdoor Night Lighting Service
Rate Schedule NLGT

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The Electricity Usage Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

(End)

DRAFT
Residential Service
Rate Schedule R

I. Applicability

This Rate Schedule R applies to single- and three-phase service for the following types of residential premises:

1. Individually metered residences including single-family homes, duplexes, apartments, and condominiums; and
2. General farm service where the meter also serves the residence or additional meters on a farm where the electricity consumed is solely for domestic purposes; and
3. Master-metered service to a qualifying multifamily accommodation or mobile home park that is submetered to all single-family units or individual mobile homes.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

A. Fixed Rate (rate category RF01)

1. The Fixed Rate is the alternative rate to SMUD’s Time-of-Day (TOD) (5-8 p.m.) Rate (rate category RT02) under Rate Schedule R-TOD.
2. The Fixed Rate is required for customers serviced with analog meters and digital non-communicating meters.
3. Customers who qualify for Rate Schedule NEM1 and have an eligible renewable electrical generation facility that was approved for installation prior to January 1, 2018 are eligible to enroll in the Fixed Rate and may remain on the Fixed Rate after December 31, 2022.
4. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation on or after January 1, 2018 are not eligible to enroll in the Fixed Rate.
5. Customers who have an eligible renewable electrical generation facility under Rate Schedule SSR are not eligible to enroll in the Fixed Rate.
6. Customers who have a storage facility without an associated eligible generating facility are not eligible to enroll in the Fixed Rate.
7. Customers who have master meters, including those enrolled on the RSMM rate category, are not eligible to enroll in the Fixed Rate.
8. The Fixed Rate will be used for the collection of revenue associated with unauthorized use of residential electric service regardless of the date(s) or time(s) in which the use occurred.

B. Legacy Rate (rate categories RSCH, RWCH, RSEH, RWEH, RSGH and RWGH) Closed

1. The Legacy Rate is closed for enrollment to all residential customers who do not have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018.
2. The Legacy Rate will no longer be an available rate option to residential customers once a customer has been transitioned to the TOD (5-8 p.m.) Rate. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018 and are enrolled on the Legacy Rate may remain on this closed rate until transitioned to SMUD’s standard TOD (5-8 p.m.) Rate as early as January 1, 2023, as technically feasible.. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.
4. The Legacy Rate will be eliminated once all customers are removed from this rate and the rate transition is complete.

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Residential Service
Rate Schedule R

C. Master-Metered Multifamily Accommodation and Mobile Home Park Billing (Rate Category RSMM)

1. This rate is closed to new customers unless SMUD determines that it is not reasonable or feasible to provide service and meter the individual units directly.
2. The master-metered customer's electricity consumption will be billed using the total kWh usage of the master-meter divided by the number of occupied single-family accommodations. The billing calculation will include applicable discounts to all kWh Usage Charges and System Infrastructure Fixed Charge (SIFC) for qualifying energy assistance and medical equipment discount program participants. The customer must advise SMUD within 15 days following any change in the number of occupied single-family accommodations wired for electric service.

II. Firm Service Rates

A. Fixed Rate Customers (rate category RF01)

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Fixed Rate (RF01)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1153	\$0.1170	\$0.1194
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1870	\$0.1907

B. Legacy Rate Customers (rate categories RSCH, RWCH, RSEH, RWEH, RSGH, RWGH) Closed

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Legacy Rates (RSCH, RWCH, RSEH, RWEH, RSGH, RWGH) (Closed)			
Winter Season* (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1279	\$0.1298	\$0.1324
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1486	\$0.1516

* All seasons with the exclusion of summer (June 1 – September 30). Winter Season includes Fall (Oct 1 – Nov 30) and Spring (Apr 1 – May 31) periods for Electric Heat rate customers (RSCH, RWCH, RSEH, RWEH).

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Residential Service
Rate Schedule R

C. Master-Metered Multifamily Accommodation and Mobile Home Park Billing (Rate Category RSMM) Closed

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Master Metered Multifamily and Mobile Home Park Billing (Closed)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1279	\$0.1298	\$0.1324
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1486	\$0.1516

III. Electricity Usage Surcharges

Refer to the following rate schedule for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu

A. Energy Assistance Program. Refer to Rate Schedule EAPR.

B. Medical Equipment Discount Program. Refer to Rate Schedule MED.

C. Joint Participation in Medical Equipment Discount and Energy Assistance Programs. Refer to Rate Schedule MED.

D. Time-of-Day Rate. Refer to Rate Schedule R-TOD.

E. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) have a combined nameplate rating of less than 100 kW; and
3. The generator(s) are connected to SMUD's electrical system; and
4. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Charge January 1 through December 31

\$/kW of Contract Capacity per month

Effective October 1, 2022	\$7.450
Effective March 1, 2022	\$7.562
Effective January 1, 2023	\$7.713

In addition to the Generator Standby Charge, SMUD will continue to bill for all applicable charges under this rate. These charges include SIFC and electricity usage charges for SMUD-provided power.

The Generator Standby Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **R-3**

Effective: **January 1, 2022**

Edition: **January 1, 2022**

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Residential Service
Rate Schedule R

F. Customer Energy Generation Option. Refer to Rate Schedule NEM1.

G. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

H. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

I. Plug-In Electric Vehicle (PEV) Option. Refer to Rate Schedule R-TOD.

J. Residential Three-Phase Service Option

This option is open to customers located in areas where three-phase service is available. A Special Facilities fee is charged to cover the additional costs for providing this service. This charge is in addition to the SIFC.

Three-Phase Service – January 1 through December 31

Special Facilities fee per month

Effective October 1, 2022	\$48.71
Effective March 1, 2022	\$49.45
Effective January 1, 2023	\$50.45

V. Billing

KWh usage may be prorated for nonstandard billing periods, when billing period spans a price change, and/or when the billing period spans more than one season. The monthly SIFC will be prorated when the bill period is shorter than 27 days. The following table shows the basis for the proration in these circumstances. The monthly System Infrastructure Fixed Charge is determined by the billing period end date.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days (SIFC and kWh)	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days (kWh)	
Seasons overlap and price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective season or pricing periods.

(End)

DRAFT
Residential Time-of-Day Service
Rate Schedule R-TOD

I. Applicability

This Rate Schedule R-TOD applies to single- and three-phase service for the following types of residential premises:

1. Individual or dual metered residences with digital communicating meter installed, including single-family homes, duplexes, apartments, and condominiums; and
2. General farm service where the meter also serves the residence or additional meters on a farm where the electricity consumed is solely for domestic purposes.
3. Customers who have an eligible renewable electrical generation facility under Rate Schedules NEM1 or SSR that was approved for installation by SMUD on or after January 1, 2018, or who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2018 must be on this Rate Schedule R-TOD.

Master-metered service to a qualifying multifamily accommodation or mobile home parks are not eligible for Time-of-Day rates under rate schedule R-TOD.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

A. Time-of-Day (5-8 p.m.) Rate (rate category RT02)

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD’s residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
2. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.
3. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

B. Optional Time-of-Day (4-7 p.m.) Rate (rate category RT01) Closed

1. The TOD (4-7 p.m.) Rate is closed for enrollment to residential customers.
2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018, and are enrolled on the TOD (4-7 p.m.) Rate may remain on this closed rate until December 31, 2022.
3. The TOD (4-7 p.m.) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 as early as January 1, 2023 as technically feasible. Customers will then transition to SMUD’s standard TOD (5-8 p.m.) Rate, as determined by SMUD.
4. Existing customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018 may enroll in the TOD (5-8 p.m.) Rate or any other open rate at any time; however, once enrolled in the TOD (5-8 p.m.) Rate or any other open rate, the customer cannot return to the TOD (4-7 p.m.) Rate.

Residential Time-of-Day Service Rate Schedule R-TOD

5. This rate has three kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Jun 1 - Sep 30	Summer Super Peak	Weekdays between 4:00 p.m. and 7:00 p.m.
Year-round (Jan 1 - Dec 31)	Peak	Weekdays between 9:00 a.m. and 9:00 p.m. except during the Summer Super Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

C. Optional Critical Peak Pricing (CPP) Rate (rate categories RTC1 and RTC2)

- The CPP rate is available as of June 1, 2022 for customers who are participating in a qualifying program. Customers that have accepted a storage incentive under the Solar and Storage Rate incentive program are required to enroll in this rate for a duration as determined by SMUD program rules posted on www.smud.org.
- A maximum of 30,000 customers may be enrolled in this rate at any given time.
- CPP Events may range from one to four hours, but not more than once per day. CPP Events may be called during any hour of the day during summer months, including holidays and weekends, up to 50 hours per summer. CPP Events may span multiple time-of-day periods.
- CPP Events will be announced by SMUD a day in advance. However, in the event of a system emergency, announcements may occur the same day as the event.
- This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

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Residential Time-of-Day Service
Rate Schedule R-TOD

II. Firm Service Rates

A. Time-of-Day (5-8 p.m.) Rate

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Time-of-Day (5-8 p.m.) Rate (RT02)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
Peak \$/kWh	\$0.1494	\$0.1516	\$0.1547
Off-Peak \$/kWh	\$0.1082	\$0.1098	\$0.1120
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
Peak \$/kWh	n/a	\$0.3215	\$0.3279
Mid-Peak \$/kWh	n/a	\$0.1827	\$0.1864
Off-Peak \$/kWh	n/a	\$0.1323	\$0.1350

B. Optional Time-of-Day (4-7 p.m.) Rate (Closed)

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Time-of-Day (4-7 p.m.) Rate (RT01) (Closed)			
Winter Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
Peak \$/kWh	\$0.1655	\$0.1680	\$0.1713
Off-Peak \$/kWh	\$0.0953	\$0.0967	\$0.0986
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
Summer Super Peak \$/kWh	n/a	\$0.4200	\$0.4284
Peak \$/kWh	n/a	\$0.1680	\$0.1713
Off-Peak \$/kWh	n/a	\$0.0967	\$0.0986

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Residential Time-of-Day Service
Rate Schedule R-TOD

C. Optional Critical Peak Pricing Rate

1. The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).
2. The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.
3. During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.
4. During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.
5. The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org.

D. Plug-In Electric Vehicle Credit (rate categories RT02, RT01, RTC1 and RTC2)

This credit is for residential customers who have a licensed passenger battery electric plug-in or plug-in hybrid electric vehicle.

Credit applies to all electricity usage charges from midnight to 6:00 a.m. daily

Electric Vehicle Credit..... **-\$0.0150/kWh**

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges.

- A. Hydro Generation Adjustment (HGA).** Refer to Rate Schedule HGA.

IV. Rate Option Menu

- A. Energy Assistance Program.** Refer to Rate Schedule EAPR.
- B. Medical Equipment Discount Program.** Refer to Rate Schedule MED.
- C. Joint Participation in Medical Equipment Discount and Energy Assistance Program.** Refer to Rate Schedule MED.
- D. Generator Standby Service Option**

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) have a combined nameplate rating less than 100 kW; and
3. The generator(s) are connected to SMUD's electrical system; and
4. SMUD is required to have resources available to provide supplemental service, backup electricity and/ or to supply electricity during generator(s) maintenance service.

Generator Standby Service – January 1 through December 31
\$/kW of Contract Capacity per month

Effective October 1, 2022	\$7.450
Effective March 1, 2022	\$7.562
Effective January 1, 2023	\$7.713

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under the selected residential TOD rate. These charges include System Infrastructure Fixed Charges and electricity usage charges for SMUD-provided power. All energy provided to the customer by SMUD will be billed at the applicable residential TOD rates.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **R-TOD-4**

Effective: **January 1, 2022**

Edition: **January 1, 2022**

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Residential Time-of-Day Service
Rate Schedule R-TOD

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

H. Residential Three-Phase Service Option

This option applies to customers located in areas where three-phase service is available. A Special Facilities fee is charged to cover the additional costs for providing this service. This charge is in addition to the System Infrastructure Fixed Charge.

Three-Phase Service – January 1 through December 31

Special Facilities fee per month

Effective October 1, 2022	\$48.71
Effective March 1, 2022	\$49.45
Effective January 1, 2023	\$50.45

V. Conditions of Service

A. Time-of-Day Billing Periods

Off-Peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

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Residential Time-of-Day Service
Rate Schedule R-TOD

VI. Billing

A. Proration of Charges

The electricity usage charge will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The monthly System Infrastructure Fixed Charge will be prorated when the bill period is shorter than 27 days as shown in the following table. The monthly System Infrastructure Fixed Charge is determined by the billing period end date.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

DRAFT
Street Lighting Service
Rate Schedule SLS

I. Applicability

This Rate Schedule SLS applies to outdoor lighting service facilities for:

1. Streets; and
2. Highways, and bridges; and
3. Public parks; and
4. Elementary schools, secondary schools, and colleges.

This schedule covers the following service categories:

- **Customer-owned and maintained — Rate Category SL_COM**
- **Customer-owned and maintained, metered — Rate Category SL_COM_M**
- **Customer-owned, SMUD-maintained — Rate Category SL_CODM**
- **SMUD (District)-owned and maintained — Rate Category SL_DOM**

For the purposes of the following prices a "month" is considered to be a single billing period of 27 to 34 days.

II. Customer-owned and maintained — Rate Category SL_COM

Where the customer owns and maintains the street lighting equipment, SMUD will furnish electricity and switching. This rate is available to customers that are not eligible for the default SL_COM_M metered rate or as determined by SMUD. Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_COM		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

III. Customer-owned and maintained, metered — Rate Category SL_COM_M

Eligible street lighting customers requesting new installations of lamps or additions of new lamps to existing accounts will default to the metered SL_COM_M rate. Eligible street lighting customers will be served under the default rate or as determined by SMUD.

Where the customer owns and maintains street lighting equipment, that is controlled to **operate solely during dusk to dawn hours**, SMUD will furnish electricity, the meter, and switching. The charges will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_COM_M		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$10.50	\$10.70
Electricity Usage Charge <i>All day \$/kWh</i>	\$0.0907	\$0.0925

DRAFT
Street Lighting Service
Rate Schedule SLS

IV. Customer-owned, SMUD (District)-maintained — Rate Category SL_CODM (Closed to new customers and installations)

This rate is closed to new customers and installations effective January 23, 2014. Where the customer owns the street lighting equipment and SMUD supplies electricity, switching and, lamp servicing and maintenance, such service will be rendered for lamps and fixtures of sizes and types as SMUD has approved. Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_CODM (closed)		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

There is a separate monthly charge for maintaining each fixture and/or lamp. SMUD maintains a list of acceptable lamps and fixture types with standard ratings and the corresponding monthly maintenance charge.

This service is restricted to SMUD-approved locations.

V. SMUD (District)-owned and maintained — Rate Category SL_DOM

Where the customer requests that SMUD install, operate, and maintain the entire street lighting system, such service will be provided with fixtures and lamps of sizes and types as approved by SMUD. This rate is restricted to streets that are defined as right-of-way held in public trust, and maintained by the applicable governmental jurisdiction. At SMUD's sole discretion, streets not readily accessible to the general public will be served under the customer owned and maintained rates only.

There will be a separate monthly charge for installation and maintenance of each fixture (including lamps, refractors, ballasts, photo cells and other typical support equipment). These charges are based on the installation of street lighting fixtures of a design specified by SMUD and mounted by means of varying length brackets affixed to poles that are used to carry distribution system circuits.

When additional or alternative facilities are installed at the customer's request, monthly charges will be assessed according to SMUD's published charge schedule.

A. Pricing

Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_DOM		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

B. Relocations and Changes

At the customer's request, SMUD may, at its sole discretion, relocate existing equipment provided the customer reimburses net expense to SMUD incurred in connection therewith, including appropriate engineering and general expense.

DRAFT
Street Lighting Service
Rate Schedule SLS

At the customer's request, SMUD may, at its sole discretion, replace existing equipment with new equipment prior to expiration of the existing equipment's service life, provided the customer pays to SMUD an amount equal to the unrecovered cost, less salvage value, of the existing equipment to be retired and executes a fifteen-year contract for service effective with installation of the new equipment.

C. New Service

New service will require an initial contract term of 15 years effective with installation of the service. If service is terminated before the contract term, the customer will be responsible for an amount equal to the unrecovered cost, less salvage value, of the equipment installed.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

VII. Conditions of Service

- A.** Service will be alternating current at a frequency of approximately 60 hertz, single phase, at voltages specified by SMUD. Lamps shall be controlled to operate from dusk to dawn each night so as to give approximately 4,000 hours of lighting service annually.
- B.** When a customer requests that SMUD finance as well as install customer-owned street lighting equipment, provisions of Rule and Regulation 2 apply.
- C.** Information on equipment that qualifies for rates on this schedule and the associated monthly charges is available, on SMUD's website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.
- D.** SMUD will furnish a meter to provide service under the metered rate categories.

VIII. Billing

A. The manufacturer's rating in watts (including all auxiliary equipment) will be used as connected load.

B. Proration of Charges (SL_DOM, SL_COM, and SL_CODM)

Billing periods for nonstandard lengths will be billed as follows:

- 1.** Service connected for 15 or more days during a billing period will be billed for a full month's service.
- 2.** Service connected for 1-14 days during a billing period will not be billed for such partial month's service.
- 3.** Service discontinued for 15 or more days during a billing period will not be billed for such partial month's service.
- 4.** Service discontinued for 1-14 days during a billing period will be billed for a full month's service.

DRAFT
Street Lighting Service
Rate Schedule SLS

C. Proration of Charges (SL_COM_M)

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

(End)

DRAFT
Traffic Control
Intersection Lighting Service
Rate Schedule TC ILS

I. Applicability

This Rate Schedule TC ILS applies to electric service for the benefit of cities, counties, and other public agencies for pedestrian and vehicular traffic signal units, together with related control devices for the purpose of traffic safety and management and associated intersection lighting where the mounting, standards, control supports, signal equipment, and luminaires are owned and maintained by the customer.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Rates (Rate Categories TS_F, TS)

	Effective as of March 1, 2022	Effective as of January 1, 2023
TS_F, TS		
System Infrastructure Fixed Charge <i>for metering point per month or portion thereof</i>	\$6.23	\$6.36
Electricity Usage Charge All day \$/kWh	\$0.1138	\$0.1161

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Conditions of Service

1. Service shall be alternating current, at a frequency of approximately 60 hertz, single phase, at secondary voltages specified by SMUD, and at service points mutually agreed upon between the customer and SMUD.
2. Lamps for intersection lighting shall be controlled to operate from dusk to dawn each night so as to give approximately 4,000 hours of lighting service annually.
3. Where the monthly consumption of electricity is consistently small or can be predetermined with reasonable accuracy by reference to the capacity of equipment served and the hours of operation, SMUD may, with customer's consent, calculate electricity consumed in lieu of providing metering equipment (TS_F).

V. Billing

For billing periods of less than 27 days or more than 34 days, System Infrastructure Fixed Charges will be prorated on the basis of the relationship between the length of the billing period and 30 days. No proration will be made on first-time billing when the total period of service is less than 30 days.

(End)

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Traffic Signal Service

Rate Schedule TSS (Closed to new customers)

I. Applicability

This Rate Schedule TSS applies to electric service for pedestrian and vehicular traffic signal units, together with related control devices where the mounting standards, control supports, and signal equipment are owned and maintained by the customer.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

II. Rate (Rate Category SL_TSF)

Monthly Charges

	Effective as of March 1, 2022	Effective as of January 1, 2023
TSS		
For units not larger than 70 watts or connected load and not exceeding three lamps per unit, the monthly charge per unit per month	\$4.52	\$4.61
For units larger than 70 watts or connected load and not exceeding three lamps per unit, the monthly charge per lamp per watt	\$0.0317	\$0.0323
Total charge per month being not less than	\$4.52	\$4.61

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Conditions of Service

1. Service shall be alternating current, at a frequency of approximately 60 hertz, single phase, at secondary voltages specified by SMUD.
2. No additional service will be provided by SMUD under Rate Schedule TSS. Upon notification by SMUD and installation of metering facilities, individual accounts will be transferred from Rate Schedule TSS to Rate Schedule TC ILS.

V. Billing

A. Connected Load

“Connected load” as used in this rate schedule shall be the sum of the capacities of all of the customer’s equipment that may be operated from SMUD’s lines at the same time.

B. Billing Periods of Nonstandard Length

Billing periods of nonstandard length will be billed as follows:

1. Service connected for 15 or more days during a billing period will be billed for a full month’s service.
2. Service connected for 1-14 days during a billing period will not be billed for such partial month’s service.
3. Service discontinued for 15 or more days during a billing period will not be billed for such partial month’s service.
4. Service discontinued for 1-14 days during a billing period will be billed for a full month’s service.

(End)

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein, the recommendation includes a new Solar and Storage Rate; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50

presentations to community neighborhood and business organizations, over 300 community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in 1 meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial

targets, address the cost shift from the existing Net Energy Metering (NEM) rate, and support the 2030 Zero Carbon Plan; and

WHEREAS, the 2030 Zero Carbon Plan was approved by the Board in April 2021, and sets an ambitious goal to reach zero carbon emissions in SMUD's power supply by 2030; and

WHEREAS, SMUD developed a public stakeholder process to design a Solar and Storage Rate that will result in a win-win solution for SMUD's customers, solar and storage industries and advocates, environmental advocates, and low-income advocates; and

WHEREAS, the public stakeholder process involved a Technical Working Group designed to receive input into the development of a value of behind the meter rooftop solar study; SMUD spent nearly four months with a Technical Working Group made up of a diverse range of stakeholders representing many views, including the solar industry, the environmental community, solar and non-solar customers, low-income advocates, academics and the utility solar industry; this Technical Working Group agreed on the key inputs for an independent study specific to SMUD's system and territory; and

WHEREAS, a Request for Proposal for an independent third party to determine the value of behind the meter rooftop solar using the values agreed upon by the Technical Working Group, resulted in the development of the Value of Solar and Solar + Storage Study (VOS Study) by Energy + Environmental Economics (E3); and

WHEREAS, a comprehensive independent VOS study was completed in September 2020 and made available to the public on www.smud.org, and the proposed

solar and storage export rate reflects the value of solar, as reported in the study, which includes transmission, distribution, generation capacity, energy, greenhouse gases and avoided land use; and

WHEREAS, the VOS Study valued solar at 7¢ per kilowatt hour (kWh) under the assumption that the energy produced from that solar replaces energy produced by a natural gas power plant in 2020, and 0.4¢ per kWh for indirect benefits of behind the meter rooftop solar; and

WHEREAS, over the past two years, SMUD has spent close to 1,000 hours working collaboratively with customers, stakeholders and the solar and storage industry to design a holistic, transformational and industry-leading rate proposal, and

WHEREAS, the 2030 Zero Carbon Plan calls for up to an additional 3,000 Megawatts (MW) of new renewable energy and storage to be added to SMUD's service territory by 2030; with rooftop solar paired with battery storage; and which will incentivize grid stability as SMUD transitions away from carbon-emitting power plants; and

WHEREAS, the netting concept in the current NEM1 rate means customers get less value if they install storage, which discourages the adoption of storage; as a result, only about 300 SMUD customers have installed storage since the inception of the current NEM1 rate; and

WHEREAS, storage technology is still developing, making the cost prohibitively expensive for most customers, and it is the intent of SMUD to transform the current solar only industry to a solar plus storage industry with the investment of

\$25 million in battery incentives in combination with other supporting rates and programs to promote the adoption of rooftop paired with storage; and

WHEREAS, the recommendations in the CEO & GM Report include the implementation of a new Solar and Storage Rate, designed to encourage a transition from solar only to solar plus storage and more accurately compensate customers for the value of solar sent to the grid; and

WHEREAS, with the 2030 Zero Carbon Plan including up to 3,000 megawatts (MW) of renewable energy and storage in SMUD's service territory by 2030, this goal requires a significant increase in customers that adopt storage; and

WHEREAS, as of June 2021, SMUD had approximately 37,000 customers with solar, but only about 300 customers with storage; and

WHEREAS, SMUD proposes a Solar and Storage Rate for energy sold to SMUD – all customers selling any energy back to the grid will be paid 7.4¢ per kWh, regardless of time of day or season; and

WHEREAS, the recommendation in the CEO & GM Report includes allowing Solar and Storage Rate customers to size their system for future electrification with a new higher allowed system sizing of 110% of household usage; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedule NEM1 to reflect the postponement of the commercial rate restructure; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is also implementing a one-time interconnection fee to pay for the costs of interconnecting solar and storage customers to SMUD's grid; the fees do not require a

rate action for approval, and the amount of the fees will be posted on www.smud.org;
and

WHEREAS, apart from the recommendations included in this rate action, SMUD has committed to invest \$25 million to implement incentives for battery program partnerships based on the size of the storage system and how that storage system is operated or controlled – by the customer or through a virtual power plant partnership; the details of the program(s) and amounts of incentives will be available on www.smud.org, these incentives do not require a rate action for approval and may be adjusted as necessary to assist SMUD in meeting the 2030 Zero Carbon Plan; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is committed to bringing the benefits of solar to multi-family dwelling communities in historically under-resourced communities through a Virtual Solar program; the new Virtual Solar program would allow property owners of a qualifying multi-family affordable housing complex to install a solar generation system that allocates a portion of the financial benefit of the generation to each residential tenant, according to SMUD’s Virtual Solar program policies; the development of SMUD programs do not require a rate action, and the details of the program will be available on www.smud.org; and

WHEREAS, programs and fees do not require Board approval and information on such programs and fees is provided for informational purposes only to describe the overall holistic rate package; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, and supports the 2030 Zero Carbon Plan; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the lock-in for NEM customers that interconnect prior to January 1, 2022, complies with Proposition 26 because SMUD is permitted to reward investment in a solar demand management program designed to encourage conservation of traditional resources and increase supply for all customers, and the cost of such a program may be borne by all customers; state law also requires that SMUD displace its fossil fuel reliance, and compliance with this regulatory mandate is a cost of service that may be funded by all ratepayers; and

WHEREAS, the NEM rates were in place prior to the adoption of Proposition 26, and subsequent rate changes brought a subset of solar rates closer to the cost of service; therefore, NEM rates may be locked in as legacy rates under Proposition 26; and

WHEREAS, the VOS Study supports the Solar and Storage Rate export compensation rate, which complies with Proposition 26; and

WHEREAS, the export compensation rate will be adjusted every four years in response to future rate studies; however, these adjustments cannot increase or decrease the export compensation rate by more than 30% of the rate that applied during the previous four-year period; and

WHEREAS, the value of solar power is expected to decrease in the future, and the 30% cap on the export rate increases is not anticipated to impact export compensation; conversely, to the extent that the 30% cap on rate decreases benefits customers on the Solar and Storage Rate, this subsidy is justified by both increased supply available to all customers, and the regulatory mandate to displace fossil fuel reliance; and

WHEREAS, this Board has carefully considered the CEO & GM Report, public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. CHANGES TO RATE SCHEDULE NEM2:

a. Effective January 1, 2022, close and replace Rate Schedule NEM2 with Rate Schedule SSR. All customers on Rate Schedule NEM2 as of December 31, 2021, will be subject to Rate Schedule NEM1.

Section 2. CHANGES TO RATE SCHEDULE NEM1:

a. Effective September 17, 2021, modify the first paragraph of Section VII of Rate Schedule NEM1 to reflect the residential rate requirement approved in Resolution 17-06-09 and to be on Rate Schedule R-TOD.

b. Effective September 17, 2021, implement several minor language updates as specified in Rate Schedule NEM1.

c. Effective September 17, 2021, Rate Schedule NEM1 will apply to customers that meet the following criteria:

- i. Moved in or established service prior to January 1, 2022;
- and
- ii. Application for interconnection approved by SMUD prior to January 1, 2022.

d. Effective September 17, 2021, modify Rate Schedule NEM1 as described in the following table:

Category	Moved in or established service prior to Jan. 1, 2022 AND Application for interconnection approved by SMUD prior to Jan. 1, 2022
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On or before December 31, 2030	<ul style="list-style-type: none"> Customer is subject to NEM 1
After December 31, 2030	<ul style="list-style-type: none"> Customer is subject to the Solar and Storage Rate.
Move in/move out, Transfer of Service	<ul style="list-style-type: none"> New customer at premises subject to Solar and Storage Rate. Customer subject to Solar and Storage Rate at new premises, if applicable.
System Modification/Replacement	<ul style="list-style-type: none"> Subject to Solar and Storage Rate if: <ol style="list-style-type: none"> System size increased more than 10% of generating capacity originally approved, or 1 kW, whichever is greater, or exceeds 110% of generating capacity originally approved. Revised/new interconnection application for system replacement.
Storage Incentives	<ul style="list-style-type: none"> Customers are required to be on Solar and Storage Rate to receive storage incentives.
Transition to Solar and Storage Rate	<ul style="list-style-type: none"> If a customer enrolls in the Solar and Storage Rate, they cannot return to Rate Schedule NEM1.
On or After January 1, 2022	<ul style="list-style-type: none"> Rate Schedule NEM1 is closed to new customers, except to those customers that are subject to Section II in Rate Schedule SSR.

e. Effective September 17, 2021, modify Rate Schedule NEM1 by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, Rate Schedule SSR will apply to customers that meet the following criteria:

i. Moved in or established service on or after January 1, 2022 to a premises with an eligible generating facility; or

ii. Have an eligible generating facility where the interconnection application was approved by SMUD on or after January 1, 2022.

b. Effective January 1, 2022, create Rate Schedule SSR as described in the following table:

Category	<p>Moved in or established service on or after Jan. 1, 2022</p> <p>OR</p> <p>Application for interconnection approved by SMUD on or after Jan. 1, 2022</p>
System Size	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
System Modification/Replacement	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
Export Compensation Rate	<ul style="list-style-type: none"> \$0.0740 per kWh effective January 1, 2022.
Export Compensation Rate Updates	<ul style="list-style-type: none"> SMUD will update the export compensation rate every four years, starting in 2026, using a combination of publicly available local indices and SMUD actual costs for components of the Export Compensation Rate. The Export Compensation Rate will not be changed more than $\pm 30\%$ every four years. The revised value will be subject to Board approval at a regular Board meeting and will be posted on smud.org.
Solar and Storage Implementation Date	<ul style="list-style-type: none"> January 1, 2022. In the event that the Solar and Storage Rate is unavailable January 1, 2022, customers will temporarily be subject to Rate Schedule NEM1 until it is technically feasible to transition them to the Solar and Storage Rate.
Electing the Solar and Storage Rate	<ul style="list-style-type: none"> Customers with an eligible electrical generation facility on their premises may elect to enroll in the Solar and Storage Rate
Residential Rate Eligibility	<ul style="list-style-type: none"> Standard residential rate (including the optional CPP Rate).
Annual Settlement	<ul style="list-style-type: none"> No annual settlement. Export credit will roll forward to the next month.

Billing	<ul style="list-style-type: none"> • All customers will be billed monthly for all charges. • The export credit can only offset electricity usage charges.
Storage Incentives	<ul style="list-style-type: none"> • May accept storage incentives.
Storage Only	<ul style="list-style-type: none"> • Customers that have storage without an associated generating facility qualify for this tariff, regardless of date approved by SMUD.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. MISCELLANEOUS CHANGES RELATED TO THE SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, replace all references to Rate Schedule NEM2 with Rate Schedule SSR in Rate Schedules R and R-TOD.

b. Effective January 1, 2022, update Section IV, Subsection F of Rate Schedule R as follows:

Customer ~~Net Energy~~ Generation Metering Option. Refer to Rate Schedules NEM1 and ~~NEM2~~.

c. Effective January 1, 2022, update Section IV, Subsection E of Rate Schedule R-TOD as follows:

Customer ~~Net Energy~~ Generation Metering Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

d. Effective January 1, 2022, update Section IV, Subsection B of Rate Schedule AG as follows:

Customer ~~Net Energy~~ Generation Metering Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

e. Effective September 17, 2021, update Section V, Subsection E of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

Customer Net Energy Generation Metering Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. ALTERNATIVE RECOMMENDATION 1: SMUD received several comments to either create a glide path for the export rate or lock in the export rate for a certain amount of time.

This Board has considered the comments in this alternative recommendation 1 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service. Including a glide path would pay a higher export compensation rate that exceeds the value of solar, resulting in an untenable cross-subsidy from non-solar/storage customers.

Section 6. ALTERNATIVE RECOMMENDATION 2: SMUD received several comments to extend the implementation date of the Solar and Storage Rate. This Board has considered the comments in this alternative recommendation 2 and has determined not to adopt them for the following reasons:

- SMUD met the legal requirement of the original NEM law in 2017. As such, all customers who installed solar starting in 2018 could therefore be subject to a successor rate. The staff recommendation allows those customers to continue to receive NEM1 compensation through 2030.

As the effective date of a successor rate has already been extended for 4 years while SMUD continued to offer NEM1 after 2017, the staff recommendation to implement the new Solar and Storage Rate on January 1, 2022, is reasonable.

Section 7. ALTERNATIVE RECOMMENDATION 3: SMUD received several comments to extend the time period that customers may continue to receive NEM1 benefits beyond 2030.

This Board has considered the comments in this alternative recommendation 3 and has determined not to adopt them for the following reasons:

- SMUD staff has determined that approximately 95% of customers who install solar in 2021 will have their solar systems paid back by the end of 2030. Additionally, for every year after 2030 that SMUD extends the NEM1 benefits, the cost shift to customers without solar increases by about \$10 million. SMUD must balance the benefit to our customers that have invested in solar along with those customers that have not.

Section 8. ALTERNATIVE RECOMMENDATION 4: SMUD received several comments to increase the export rate for excess generation and tie the export rate to the Time-of-Day time periods.

This Board has considered the comments in this alternative recommendation 4 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service.

- SMUD staff collaborated with the solar and storage industries to develop the new Solar and Storage Rate. The feedback received was to make the new Solar and Storage Rate as simple as possible for customers to understand. The 7.4¢ per kWh compensation rate achieves this goal. SMUD staff did complete an analysis on a TOD-based compensation structure, and the results showed only a minimal difference from the 7.4¢ per kWh compensation. The staff proposal follows the Board directive on rates simplicity. As such, the staff proposal complies with SD-2 on being simple and easy to understand approach compared to a more complex compensation mechanism.

Section 9. ALTERNATIVE RECOMMENDATION 5: SMUD received several comments to increase the battery incentives.

This Board has considered the comments in this alternative recommendation 5 and has determined not to adopt them for the following reasons:

- Staff used a holistic approach to address the market transformation from solar only to solar plus storage with a combination of rates and supporting programs. The battery storage incentives are programs and therefore outside of the Board's decision-making in this rate process. Programs will be implemented by staff and the intent is to allow flexibility and make adjustments to respond to demand, should the need arise.

Section 10. ALTERNATIVE RECOMMENDATION 6: SMUD received several comments to expand the Virtual Solar program to all multi-tenant properties.

This Board has considered the comments in this alternative recommendation 6 and has determined not to adopt them for the following reasons:

- The Virtual Solar Program is outside of the Board's decision-making in this rate process.
- Low-income customers have been largely left out in the adoption of rooftop solar. It has created a fairness and equity issue. Of our nearly 36,000 residential solar customers, only about 5% or 2,000 are on our low-income or Energy Assistance Program Rate (EAPR), and SMUD has helped pay to install some of those systems. Our first priority, as stated above, is to provide under resourced communities with access to solar. After we launch this program, we will look to see how we can further expand virtual solar without adding additional cost shift, but our first priority must be our under-resourced communities.

Section 11. ALTERNATIVE RECOMMENDATION 7: SMUD received several comments to provide more details on the Critical Peak Pricing (CPP) Rate. This Board has considered the comments in this alternative recommendation 7 and is providing the following information as requested:

- Staff's proposal includes adequate detail to establish the CPP Rate on pages 43-46 of the CEO and GM Report.
- The prices for the CPP Rate will be included on the SMUD website to allow for flexibility in adjusting the rate to increase participation. The actual 2022 prices will be calculated at the end of 2021 based on

market conditions at that time. Staff will then post the prices to the website.

Section 12. ALTERNATIVE RECOMMENDATION 8: SMUD received a recommendation that customers should not lose their NEM1 if they install a battery. This Board has considered this alternative recommendation 8 and would like to clarify that the staff recommended proposal is consistent with this recommendation. Under the proposed Solar and Storage Rate, customers who currently receive NEM1 benefits will not lose those benefits if they install a battery. However, if a customer who currently receives NEM1 benefits chooses to accept a storage incentive for a battery, they will then be moved to the new Solar and Storage Rate.

Section 13. ALTERNATIVE RECOMMENDATION 9: SMUD received a recommendation to pay an export rate of 7.4¢ per kWh for system sizes up to 110% of household usage, and pay an export rate of cost of utility scale solar for systems sized 110-220% of household use.

This Board has considered this alternative recommendation 9 and has determined not to adopt it in this rate process because it will have significant implications to SMUD's billing system. SMUD may take this recommendation into further consideration in a future rate process if it can determine a reasonable solution.

Section 14. ALTERNATIVE RECOMMENDATION 10: SMUD received a recommendation to "clearly state in the SSR rate schedule, REC ownership and that a customer with such a facility shall transfer legal title for RECs at no cost to SMUD so other customers will not be burdened." Additionally, SMUD received a recommendation

to remove the word “eligible for certification” from Section I of the Solar and Storage Rate tariff.

This Board has considered the list of policies in this alternative recommendation 10 and has determined not to adopt the recommendation for the following reasons:

- SMUD is not proposing to make any changes to our current policies in regards to REC treatment in this rate process.
- To be eligible for the Solar and Storage Rate, a customer must have an eligible renewable energy resource as defined by the CEC, but does not need to have it registered.
- The export rate under the SSR rate schedule does not include the value of RECs and customers retain ownership of the RECs.
- SMUD may adopt programs in the future that address REC ownership and the process of transferring ownership.

Section 15. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

Section 16. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies

which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

(A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.

(C) The above findings are based on information set forth in the CEO & GM Report.

Section 17. The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

Section 18. To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

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Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

	<u>Effective Date</u>	<u>Sheet Number</u>	<u>Page Number</u>
Table of Contents.....	Sept 17, 2021	i	
Preliminary Statement	Sept 17, 2021	ii	
Rate Schedules			
NEM1 Net Metering for Qualifying Facilities.....	Sept 17, 2021	NEM1-1-3	1
SSR Solar and Storage Rate.....	Jan 1, 2022	SSR-1-3	4

Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

Net Energy Metering Rate Schedule NEM1

I. Applicability

This Rate Schedule NEM1 applies to residential, commercial/industrial, and agricultural customers who established service at their premises prior to January 1, 2022 and have an electrical generation facility on their premises that is fueled by a renewable fuel source which had an application for interconnection approved by SMUD prior to January 1, 2022.

In the event that the Solar and Storage Rate is not available on January 1, 2022 due to implementation delays, this Rate Schedule NEM1 would temporarily apply to those customers on Rate Schedule SSR who establish service, move out/in, or transfer service at a premises that have an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2022 or have an electrical generation facility on their premises that is fueled by a renewable fuel source which was approved for interconnection by SMUD on or after January 1, 2022, that are subject to the transition period described under Section II. Transitional Conditions. These customers will be transitioned to Rate Schedule SSR as soon as technically feasible.

This Rate Schedule NEM1 will be closed to new customers as of January 1, 2022, except for those customers that are subject to the transition period described under Section II. Transitional Conditions of Rate Schedule SSR.

All NEM1 Customers will be transitioned to Rate Schedule SSR as early as January 1, 2031, as technically feasible. At that point, all residential customers must also be on Rate Schedule R-TOD. Once all customers have been transitioned, this Rate Schedule NEM1 will be eliminated.

Once a customer is enrolled in Rate Schedule SSR, they cannot return to this Rate Schedule NEM1.

A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- photovoltaic
- wind
- biomass
- solar thermal
- geothermal
- fuel cells using renewable fuels
- small hydroelectric
- digester gas
- municipal solid waste conversion
- landfill gas
- ocean wave
- ocean thermal
- tidal current

Small hydroelectric generation facilities will not qualify for this tariff if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this tariff if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

II. Generator Standby Charges

Customers who qualify for Net Energy Metering (NEM) are exempt from generator standby charges on that portion of their load that is served by the NEM eligible facility.

¹ See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

**Net Energy Metering
Rate Schedule NEM1****III. Conditions of Service****A. Eligibility**

The following are requirements for eligibility under this rate schedule:

1. The facility must be located on the customer's premises; and
2. The facility must operate in parallel with SMUD's distribution facilities; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The facility must be intended primarily to offset part or all of the customer's own electrical requirements; and
5. The facilities and the electrical requirements are located at a single and same metering point; and
6. The customer has not received storage incentives under a qualifying SMUD program; and
7. The facility does not increase in size more than 10% of the generating capacity originally approved, or 1 kW, whichever is greater, and does not exceed 110% of the generating capacity originally approved, based on the CEC-AC rating at the initial date of approval; and
8. The customer has not submitted a revised or new interconnection application for entire system replacement; and
9. The generating capacity can be a maximum of 3,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

IV. Metering

SMUD will pay for and install, at no cost to the customer, a single meter capable of registering the flow of electricity in both directions.

V. Payments

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

- A.** Charges for other than electricity usage must be paid monthly. This includes the System Infrastructure Fixed Charge, Maximum Demand Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge, program fees, surcharges and taxes.
- B.** Residential, Commercial Industrial customers on rate schedule CI-TOD and Agricultural customers meeting the eligibility criteria as defined in Section III (A) of this sheet, may pay monthly or annually for the net electricity consumed.
- C.** For all other customers, the net balance of all moneys owed must be paid each monthly billing cycle.
- D.** If, in any regular billing month, the electricity supplied by SMUD is less than the electricity supplied to SMUD by the customer's eligible generation system, the customer will receive retail-valued electricity credits for the excess electricity supplied to SMUD. The retail-valued electricity credits will carry over to the following billing period until the end of the settlement period. Retail-valued electricity credits will only be credited against electricity usage charges.

VI. Settlement Method

All customers who qualify for the net metering option will have a 12-month settlement period. For existing systems the settlement period begins on the customer's move-in date. For new installations, the settlement period begins on the first day of operations after the customer has requested to be on the NEM rate and the NEM-eligible system is approved by SMUD for grid connection. At the end of the customer's 12-month settlement period, any unused accumulated monthly retail electricity credits may be zeroed out.

DRAFT
Net Energy Metering
Rate Schedule NEM1

A. Annual Net Surplus Generation

1. At the end of a customer's 12-month settlement period, SMUD shall calculate the amount of net surplus generation over the 12-month period. If the customer has net surplus generation, SMUD will, at the customer's election, either:
 - Provide a monetary payment to the customer for the net surplus; or
 - Roll over the net annual surplus kWh into the next 12-month period.

Monetary value per kWh of net surplus generation shall be based on the most recently published SMUD budget, calculated as the dollar value of the expected avoided generation and production-related costs divided by the forecasted annual energy sales.

2. For each kWh purchased by SMUD under this annual net surplus generation method, the ownership of the associated renewable electricity credit will transfer from the customer to SMUD.
3. The net surplus monetary value shall be calculated annually.
4. This net surplus monetary value will remain in effect for the duration of the fiscal year used for the calculation of the customer's net surplus generation.
5. The value will be published on SMUD's website, www.smud.org, by December 20 prior to the year the value is in effect.

B. Opt-Out of Annual Net Surplus Generation

Customers may elect to opt out of receiving compensation or kWh roll-over credit for their net surplus generation over their 12-month settlement period. Customers who elect to opt out will not receive any form of compensation nor credit for net surplus generation delivered to SMUD. Such customers will be allowed to retain any associated renewable electricity credits produced by their net surplus generation.

VII. Residential Rate Requirement

Residential customers who have an eligible renewable electrical generation facility on their premises that was approved by SMUD for installation, or who move-in or transfer service to a premises with an eligible renewable electrical generation facility on or after January 1, 2018 must also be on Rate Schedule R-TOD.

(End)

DRAFT
Solar and Storage Rate
Rate Schedule SSR

I. Applicability

This Rate Schedule SSR applies to residential, commercial/industrial, and agricultural customers who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2022 (except customers subject to the transition period described under Section II. Transitional Conditions) or have an electrical generation facility on their premises that is fueled by a renewable fuel source which was approved for interconnection by SMUD on or after January 1, 2022 (except customers subject to the transition period described under Section II. Transitional Conditions).*

All customers that have an electrical generation facility on their premises on or before December 31, 2021 that is fueled by a renewable fuel source may elect to enroll in Rate Schedule SSR on or after January 1, 2022.

A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- | | |
|------------------------------------|------------------------------------|
| • photovoltaic | • digester gas |
| • wind | • municipal solid waste conversion |
| • biomass | • landfill gas |
| • solar thermal | • ocean wave |
| • geothermal | • ocean thermal |
| • fuel cells using renewable fuels | • tidal current |
| • small hydroelectric | |

Small hydroelectric generation facilities will not qualify for this tariff if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this tariff if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

*Storage facilities installed without an associated generating facility qualify for this tariff, regardless of the date approved by SMUD.

II. Transitional Conditions

In the event that this Solar and Storage Rate is not available on January 1, 2022 due to implementation delays, customers will temporarily be subject to Rate Schedule NEM1 until transitioned to Rate Schedule SSR when it is technically feasible.

The transitional customers may receive a storage incentive under a Solar and Storage Rate program and may size their electrical generating facility up to 110% of their own electrical requirements.

Customers with a storage facility without an associated eligible generating facility cannot be on Rate Schedule NEM1.

III. Generator Standby Charges

Customers who qualify for the Solar and Storage Rate through this Rate Schedule are exempt from generator standby charges on that portion of their load that is served by the eligible facility.

¹ See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

DRAFT
Solar and Storage Rate
Rate Schedule SSR

IV. Conditions of Service

A. Eligibility

The following are requirements for eligibility under this Rate Schedule:

1. The facility must be located on the customer's premises; and
2. The facility must operate in parallel with SMUD's distribution facilities; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The facility must be intended primarily to offset up to 110% of the customer's own electrical requirements; and
5. The facilities and the electrical requirements are located at a single and same metering point; and
6. Residential customers must also be on Rate Schedule R-TOD; and
7. The generating capacity can be a maximum of 3,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

V. Metering

SMUD will pay for and install, at no cost to the customer, a single meter capable of registering the flow of electricity in both directions.

VI. Export Compensation Rate

The Export Compensation Rate effective January 1, 2022 will be \$0.0740 per kWh (subject to updates as described in the paragraph below).

Export is defined as all kWh registered on the customer bi-directional meter as delivered to SMUD.

SMUD will update the Export Compensation Rate every four years, starting in 2026, using a combination of publicly available local indices and SMUD actual costs for components of the Export Compensation Rate. The Export Compensation Rate will not be changed more than $\pm 30\%$ every four years. The revised value will be subject to Board approval at a regular Board meeting and will be posted on www.smud.org. The revised Export Compensation Rate will apply to all customers on the Solar and Storage Rate.

VII. Payments

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

- A. In any regular billing month, the electricity supplied by SMUD is billed at retail pricing, based on the customer's rate category.
- B. Any electricity that is exported to SMUD is credited at the Export Compensation Rate on the customer's bill. The export credit can only offset electricity usage charges. Any remaining credit will carry over to subsequent billing periods.
- C. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge, Maximum Demand Charge, Site Infrastructure Charge, electricity usage charges that are not offset by the export credit, program fees, surcharges and taxes must be paid each monthly billing cycle.

DRAFT
Solar and Storage Rate
Rate Schedule SSR

VIII. Storage Incentives

- A. All customers that receive a storage incentive through a qualifying SMUD program must be on Rate Schedule SSR.
- B. Customers that received a storage incentive through a qualifying SMUD program that only have a storage facility (that is not associated with a renewable or other electrical generating facility) must be on Rate Schedule SSR.

(End)

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer and General Manager’s Report and Recommendation on Open Access Transmission Tariff, *Volume 1*” (the “OATT Report”), which OATT Report is incorporated by reference herein and made a part hereof; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the OATT Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notice of the public hearing was duly published on the *Sacramento Bee* on June 22, June 25 and June 30, 2021, the public hearing was held at the aforementioned time virtually on ZoomGov and livestreamed via Granicus and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300 community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer

of in-person presentations, which resulted in one meeting being held and offers for follow-up meetings if desired; and;

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on smud.org, which received approximately 3,300 page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually, and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was duly introduced on August 31, 2021, by this Board of Directors to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, by Resolution No. 04-02-02, this Board of Directors adopted SMUD's Open Access Transmission Tariff (OATT), and by Resolution Nos. 11-08-07 and 17-06-10, this Board of Directors updated the OATT; and

WHEREAS, revisions to the Schedule 1 (Scheduling, System Control and Dispatch Service) and Schedule 2 (Reactive Supply and Voltage Control from Generation or Other Sources Service) rates contained in the existing OATT are necessary to accurately reflect SMUD's cost of service; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board of Directors desires to maintain certain pre-Proposition 26 rates; this Board of Directors understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff that supported the adoption of the rates; and

WHEREAS, the recommendation to increase SMUD's OATT rates in Schedule 1 and Schedule 2 are based on cost of service principles and reflect SMUD's cost increases to provide transmission service uniformly to all transmission customers; and

WHEREAS, this Board of Directors has carefully considered the OATT Report, and public comment and input from community meetings, public rate workshops, and noticed public hearings; and

WHEREAS, this Board of Directors finds that updating the existing OATT Schedule 1 and Schedule 2 rates with the proposed revised OATT Schedule 1 and Schedule 2 rates is reasonable, in the best interests of the public and SMUD's customers, and provides a net benefit to SMUD; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. Effective September 17, 2021, SMUD's existing Open Access Transmission Tariff (OATT) Schedule 1 and Schedule 2 rates shall be revised and superseded by the revised OATT Schedule 1 rate of \$361.72 per MW of reserved capacity per month and revised Schedule 2 rate of \$80.38 per MW of reserved capacity per month (attached as Attachments ____ and ____). The other Schedule 1 and Schedule 2 rates are multiples of the monthly values, and these are updated accordingly as shown in Attachment ____ and ____.

Section 2. Environmental Assessment

1.0 Section 21080(b)(8) of the California Public Resources Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purpose of:

- (A) meeting operating expenses, including employee wage rates and fringe benefits;
- (B) purchasing or leasing supplies, equipment, or materials;
- (C) meeting financial reserve needs and requirements;
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas;

2.0 This Board of Directors finds and declares that the proposed action will have no immediate revenue impact to SMUD since these rates are only used for incidental wholesale transmission sales, and reflects the reasonable costs to SMUD of providing transmission service under the OATT; and that no amount of revenue obtained from this rate increase will be used for any other purpose. Therefore, the proposed action to approve a revised OATT Schedule 1 and Schedule 2 rates with an effective implementation date of September 17, 2021, is for the purposes set forth in Sections 21080(b)(8)(A) through (D) of the California Public Resource Code. Therefore, this rate action is exempt from the requirements of CEQA. This finding is based upon information contained in the OATT Report.

Section 3. The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to OATT Schedule 1 and OATT Schedule 2.

DRAFT

Schedule 1: Scheduling, System Control and Dispatch Service

This service is required to schedule the movement of power through, out of, within, or into a Balancing Authority Area. This service can be provided only by the operator of the Balancing Authority Area in which the transmission facilities used for transmission service are located. Scheduling, System Control and Dispatch Service is to be provided directly by the Transmission Provider (if the Transmission Provider is the Balancing Authority Area operator) or indirectly by the Transmission Provider making arrangements with the Balancing Authority Area operator that performs this service for the Transmission Provider's Transmission System. The Transmission Customer must purchase this service from the Transmission Provider or the Balancing Authority Area operator. The charges for Scheduling, System Control and Dispatch Service are to be based on the rates set forth below. To the extent the Balancing Authority Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Balancing Authority Area operator.

- 1) Yearly delivery: \$4,340.62/MW of Reserved Capacity per year.
- 2) Monthly delivery: \$361.72/MW of Reserved Capacity per month.
- 3) Weekly delivery: \$83.47/MW of Reserved Capacity per week.
- 4) Daily delivery: \$16.69/MW of Reserved Capacity per day.
- 5) Hourly delivery: \$1.0434/MW of Reserved Capacity per hour.

Schedule 2: Reactive Supply and Voltage Control from Generation or Other Sources Service

In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities and non-generation resources capable of providing this service that are under the control of the Balancing Authority Area operator are operated to produce (or absorb) reactive power. Thus, Reactive Supply and Voltage Control from Generation or Other Sources Service must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of Reactive Supply and Voltage Control from Generation or Other Sources Service that must be supplied with respect to the Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider.

Reactive Supply and Voltage Control from Generation or Other Sources Service is to be provided directly by the Transmission Provider (if the Transmission Provider is the Balancing Authority Area operator) or indirectly by the Transmission Provider making arrangements with the Balancing Authority Area operator that performs this service for the Transmission Provider's Transmission System. The Transmission Customer must purchase this service from the Transmission Provider or the Balancing Authority Area operator. The charges for such service will be based on the rates set forth below. To the extent the Balancing Authority Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by the Balancing Authority Area operator.

The Transmission Customer shall compensate the Transmission Provider each month up to the sum of the applicable charges set forth below:

Reactive Supply and Voltage Control from Generation Sources Service for Network Integration Service Customers under Part III of the Tariff:

\$110.21/MW per month times the Transmission Customer's monthly coincident peak demand.

Reactive Supply and Voltage Control from Generation Sources Service for Point-to-Point Transmission Customers under Part II of the Tariff:

- 1) Yearly delivery: \$964.52/MW of Reserved Capacity per year.
- 2) Monthly delivery: \$80.38/MW of Reserved Capacity per month.
- 3) Weekly delivery: \$18.55/MW of Reserved Capacity per week.
- 4) Daily delivery: \$3.71/MW of Reserved Capacity per day.

5) Hourly delivery: \$0.2319/MW of Reserved Capacity per hour.

The total charge for Reactive Supply and Voltage Control from Generation Sources Service in any day, pursuant to a reservation for Hourly delivery, shall not exceed the rate specified in section (4) above times the highest amount in Megawatts of Reserved Capacity in any hour during such day. In addition, the total charge for Reactive Supply and Voltage Control from Generation Sources Service in any week, pursuant to a reservation for Hourly or Daily delivery, shall not exceed the rate specified in section (3) above times the highest amount in Megawatts of Reserved Capacity in any hour or day during such week.

President Bui-Thompson then turned to agenda item 4, statements from the public regarding items not on the agenda. She stated that in accordance with the Emergency Board Meeting Procedures, public comment for items not on the agenda would be provided to the Board electronically and placed into the record if received within two hours after the meeting ended.

President Bui-Thompson called for public comment on Agenda Item 4.

General Counsel Lewis stated Mark Graham had submitted a request to speak, but he was not currently logged into the meeting.

Public comment was received and entered into the record regarding Agenda Item 4, a copy of which is attached to these minutes, from the following member of the public:

- Mark Graham

No further business appearing, President Bui-Thompson adjourned the meeting at 10:27 p.m.

Approved:

President

Secretary

SACRAMENTO MUNICIPAL UTILITY DISTRICT

SMUD BOARD OF DIRECTORS

SPECIAL VIRTUAL MEETING

Held

Tuesday, August 31, 2021

Beginning at 5:30 p.m.

CERTIFIED

REPORTER'S TRANSCRIPT OF

PUBLIC HEARING

ON PROPOSED RATE ACTION

Chief Executive Officer and General Manager's
Report and Recommendation on Rates and
Services, June 17, 2021, Volumes 1 and 2;
and
Chief Executive and General Manager's Report
and Recommendation on Open Access
Transmission Tariff, Volume 1, June 17, 2021.

Reported remotely by CHERYL L. KYLE, CSR No. 7014

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2207 J Street
Sacramento, CA 95816
916-492-1010

PUBLIC HEARING ON PROPOSED RATE ACTION

VIRTUAL ATTENDANCE

SMUD Board of Directors:

NANCY BUI-THOMPSON, President, Ward 2
BRANDON ROSE, Vice President, Ward 1
GREGG FISHMAN, Ward 3
ROSANNA HERBER, Ward 4
ROB KERTH, Ward 5
DAVE TAMAYO, Ward 6
HEIDI SANBORN, Ward 7

SMUD Executive Staff:

PAUL LAU, CEO and General Manager
LAURA LEWIS, Chief Legal & Government Affairs
Officer and General Counsel
JENNIFER DAVIDSON, CFO

SMUD STAFF:

ALCIDES HERNANDEZ, Manager, Revenue Strategy
ERIC POFF, Director, Substations,
Telecommunications & Metering Assets
RHONDA STALEY-BROOKS, Manager, Community
Development Outreach & Education
ANDREW MEDITZ, Senior Attorney, Legal
Department
JOSUE (SWAY) GARCIA, (Technical Support)
TONI STELLING, (Meeting Support)

Also In Attendance:

SMUD staff
Members of the public

--oOo--

INDEX REGARDING PUBLIC COMMENT

--oOo--

LIVE PUBLIC COMMENTS:

Alex Morris	Al Rich
Leah Miller	Fatima Malik
Frank Lindh	Lola Pudinski
Jan Smutny-Jones	Johan van Ravenhorst
Beth Hasset	Patrick Sterns
Nancy Rader	Mo Kashmiri
Patrick Bean	Alan Escarda
Bryan Dove	Chiwah Slater
Azizza Davis Goines	Steve Uhler
Luis Sanchez	Sara Long
Faith Galati	Steve Letendre
Pastor Mark Meeks	Paul Sullivan
Darrick Lam	Benjamin Davis
Tracy Jackson	Jonathan Gemma
Michael Lynch	Jennifer Tanner
Jeff Owen	Kathleen Nicholson
Jeff Spies	Keith Umemoto
Evan Schmidt	Marcy Winograd
Ed Murray	Karinna Gonzalez
Michael Zaro	Subhash Kale

COMMENTS READ DIGITALLY:

Severin Borenstein	Megan Shumway
Lee Miller	Tom Wiechert
Sean Frame	Jane Lamborn
Rick Codina	Ed Smeloff
John Briggs	Robin Durston

NAMES CALLED BUT NOT PRESENT:

Meghan Nutting	Vincent Battaglia
Steve Berlin	David Mueller
XiMarie (Marie) Chen	David Salzmann
John Lindwall	Steve Sedio
Debbra Jacobs-Robinson	Janna West-Heiss

--oOo

PUBLIC HEARING ON PROPOSED RATE ACTION

1 (Meeting called to order at 5:30 p.m.)

2 --oOo--

3 (Board business conducted, not transcribed.)

4 --oOo--

5 BOARD PRESIDENT BUI-THOMPSON: Now, on to
6 the public rate hearing.

7 Item 2 is to hold a public hearing on the
8 Chief Executive Officer and General Manager's Report
9 and Recommendation on Rates and Services, Volumes 1
10 and 2, dated June 17th; and the Chief Executive and
11 General Manager's Report and Recommendation on Open
12 Access Transmission Tariff, Volume 1, dated
13 June 17th.

14 The chief legal officer will now provide
15 an overview of the public rate process. The public
16 hearing will be transcribed by a court reporter and
17 under the rate ordinance.

18 Members of the public that have not
19 submitted a request for additional time at least ten
20 days in advance of today's meeting will have up to
21 three minutes to provide non-duplicative testimony
22 on the Chief Executive Officer and General Manager's
23 Report.

24 Laura, would you like me to continue
25 reading the rest?

PUBLIC HEARING ON PROPOSED RATE ACTION

1 SMUD GENERAL COUNSEL LEWIS: Yes. When
2 you're finished, I can provide the overview.

3 BOARD PRESIDENT BUI-THOMPSON: Okay,
4 great.

5 I would ask speakers to confine your
6 comments to the rate report itself. If you have
7 comments on other SMUD matters, you'll have the
8 opportunity to speak during the Statements of the
9 Public portion of the agenda. Additionally, we've
10 received over 40 requests to provide public comments
11 this evening. In order to assure an efficient
12 meeting, please do not repeat comments made by other
13 speakers, instead reference your agreement with the
14 comments and add any further new points that you'd
15 like to make. We appreciate your cooperation.

16 Laura, did you have additional comments
17 before we open the public hearing?

18 SMUD GENERAL COUNSEL LEWIS: Yes.

19 I just wanted to provide some
20 clarification on the process tonight because it is a
21 little bit unusual.

22 Tonight, as you know, the board will be
23 holding a public hearing on the CEO and General
24 Manager's Report and Recommendation on Rates and
25 Services.

PUBLIC HEARING ON PROPOSED RATE ACTION

1 The board will not be adopting a final
2 rate resolution tonight. Instead, after the hearing
3 closes, the board will discuss or introduce the
4 draft rate resolution provided by staff or an
5 alternative rate resolution.

6 The board's introduction of the rate
7 resolution tonight or any alternate triggers a
8 public comment period that will run for ten days.
9 This is all pursuant to our Rate Ordinance 15-1.
10 Then, at the September 16th meeting, staff will be
11 requesting that the board adopt a final rate
12 resolution. So this is a two-step process.

13 BOARD PRESIDENT BUI-THOMPSON: Great.
14 Thank you.

15 Okay. At this time I'd like to open the
16 public hearing. Before taking public comment, we
17 will have several presentations.

18 Our first step is our CFO, Jennifer
19 Davidson.

20 SMUD CFO DAVIDSON: Thank you very much,
21 President Bui-Thompson.

22 So we have about 30 minutes, probably a
23 little bit more, of presentation tonight. We'll be
24 presenting by four speakers, and you'll be hearing
25 the proposals and also about the public outreach

1 process and the comments received. And so -- next
2 slide, please.

3 Tonight, we'll talk about SMUD's approach
4 to this rate proposal, which we actually are quite
5 proud of because we think it is both
6 transformational and industry-leading, and, more
7 important, they are a direct support -- direct
8 support with SMUD's carbonization goals.

9 SMUD has the most ambitious carbon goals
10 of any large utility in the nation. You're going to
11 be hearing details about the proposed rate changes
12 listed here. But one item I wanted to call out are
13 the programs that are being proposed along with the
14 rates. Typically, programs are not paired with
15 rates the way we have. This new approach where
16 we've paired the two is important because programs
17 are flexible, unlike rates. This means that we are
18 going to be able to adjust our programs and our
19 incentives as we need to to stay on track with our
20 zero carbon road map and goals. Next slide, please.

21 So you're going to see tonight's
22 presentation includes a lot of discussion about our
23 proposed solar-and-storage rate. It is a
24 significant change, and there is a lot of interest
25 in this proposal. So I'd like to provide some

1 context to help frame the conversation.

2 I would like you to understand that this
3 change is essential and, second, how we work with
4 the solar and storage industry to hear their
5 concerns. We worked to collaborate to develop a new
6 rate structure that ensures we continue to support
7 the solar-and-storage industry in a way that is fair
8 and equitable to all customers, solar and non-solar.

9 But bottom line is this: SMUD supports
10 our customers going solar. Even better, we want and
11 need our customers to invest in solar paired with
12 storage. Together, solar and storage will help us
13 decarbonize our power supply reliably. And that
14 storage adds the important benefit of flexibility,
15 and this is the key which creates the benefit to the
16 grid for everyone.

17 So if you'll allow me, I'm going to talk
18 about a few numbers which really show all the
19 changes and -- (inaudible). Today, we pay our solar
20 customers about 13 cents per kWh for that excess
21 solar they sell back to SMUD.

22 Independent experts have valued that
23 energy closer to 7 cents. And then for context,
24 we've just completed a deal to buy solar from local
25 utility-scale for about 3.5 cents. That means that

1 we can buy local solar power for a quarter of what
2 we are paying rooftop solar.

3 So now if you go back to 1998, rooftop
4 solar systems were a lot more expensive, actually
5 three times more expensive than today. And in order
6 to get customers to invest in these expensive solar
7 systems, SMUD was required to pay customers a higher
8 rate by state policy, and that was called Net Energy
9 Metering. That was put in place in 1998 as a
10 temporary measure to incentivize the adoption of
11 solar energy, and it worked.

12 Today, as I mentioned, prices have
13 plummeted, and the solar industry is a mature
14 industry. And that successful transition was helped
15 by SMUD and all SMUD customers.

16 Some of our customers made investments in
17 solar systems, and we want to recognize the
18 importance of these investment pioneers, and that is
19 why we propose that existing solar customers can
20 stay on the existing legacy NEM rate through
21 December 31st, 2030.

22 Now, during the public comment, you're
23 likely going to hear assertions that these changes
24 are going to make investing in rooftop solar
25 unattractive and it is going to kill the solar

1 industry in the SMUD service territory.

2 But we are confident, and we've got data
3 to show, that this is not going to be the case. And
4 that is because our approach is both unique and
5 industry-leading. First of all, as I mentioned,
6 it's holistic. We are going to be pairing rates
7 with programs. And, second, I think it's important
8 to note that SMUD is community-owned, and we are
9 not-for-profit, and we are a value-based
10 organization. We do what's right for all customers,
11 the full community, which often requires balancing
12 the many asks. And we kept this in mind as we put
13 our proposal together.

14 We need to rebalance NEM compensation, and
15 we'll be able to take some of that money and invest
16 in other carbon-reduction activities like storage
17 and electrification. But we are approaching this
18 change in a way that won't irreparably harm the
19 solar industry. That is in no one's interest. But
20 the other items are needed. We must keep rate lows
21 because low rates are key to electrification, and,
22 moreover, affordability is so critical to any of our
23 customers.

24 We know that business models are changing
25 and technology's changed, and the change we really

1 want to accelerate right now is the adoption of
2 storage. We are complementing the new rates with a
3 program to help transform -- just like we
4 transformed solar -- to transform to solar and
5 storage, \$25 million in incentives to encourage
6 that.

7 So utilities need electricity to run the
8 grid safely, reliably, and efficiently. That's why
9 solar paired with batteries is so important.
10 Pairing batteries with solar benefits the customer
11 who purchases the system but also the grid and all
12 customers. Next slide, please.

13 While our official rate process kicked off
14 on May 18, before that, there was an extensive two
15 years of collaboration with the solar industry, our
16 solar customers, other stakeholders. And since
17 May 18, there has been extensive public outreach,
18 and we've held two public workshops. Tonight's
19 meeting will result in the resolution our board will
20 ultimately vote on on September 16th.

21 And I do want to acknowledge that we have
22 had some customers express concern about this
23 proposal, and I understand some of them are here
24 tonight. But I also think it's important to realize
25 and note that the last two months we have had

1 extensive outreach throughout our community, across
2 our community, and the feedback was mostly "thank
3 you" or no feedback at all, which we translate to
4 mean that we have got it about right.

5 No proposal is going to make everyone
6 happy, especially one that involves a change to our
7 solar rate. But the fact that so few of our
8 customers out of the more than 600,000 in our
9 community during our last two months of outreach
10 cited -- they did not cite any concerns. And that
11 lack of feedback tells us that we believe that we
12 have shaped a proposal that, while not perfect --
13 because no compromise will -- never be perfect, but
14 it offers something for everyone. And you're going
15 to see later in the presentation that our outreach
16 was extensive.

17 So at this point -- (inaudible phrase) --
18 as the introduction, but before I turn it over, I
19 would like to thank the many people who have been
20 helping us with this. It's been a collaborative
21 effort. It's been extensive. We've had the
22 Technical Working Group. There's been a lot of
23 investment of people's time, their expertise, and I
24 just really wanted to sincerely appreciate the
25 partnership.

1 And with your input, we believe we have a
2 solution that supports the solar and storage
3 industry through a major and necessary transition.
4 We believe it's also fair to all customers and helps
5 support keeping our rates affordable. It supports
6 the carbonization and a resilient power supply for
7 the Sacramento region.

8 So with that, I'm going to turn it over to
9 Alcides Hernandez. Thank you.

10 SMUD STAFF ALCIDES HERNANDEZ: Thank you,
11 Jennifer.

12 Good evening to the board and members of
13 the public. My name is Alcides Hernandez. I'm here
14 tonight to provide more details on the rate
15 recommendations. Next slide, please. Thank you.

16 These are the proposed changes to SMUD
17 rates. First, we are recommending two rate
18 increases: the 1.5 percent effective March 1 of
19 2022 and a 2 percent rate increase effective
20 January 1st of 2023. This applies to all our
21 customers. We're committed to keeping rates within
22 rate of inflation, and this rate proposal does that
23 through 2030.

24 Second, we are recommending a new
25 solar-and-storage rate to be effective January 1st

1 of 2022. And as Jennifer mentioned, we are
2 recommending in this proposal that all existing --
3 we call them Net Energy Metering 1.0 existing
4 customers be allowed to stay on the legacy rate
5 through 2030. This is a very important part of our
6 recommendation. Eric Poff will later provide more
7 details about this as part of the recommendation.

8 Third, we are recommending an optional
9 residential Critical Peak Pricing rate effective in
10 the summer of 2022. This will be June 1st. Our
11 goal is to enroll up to 30,000 residential customers
12 on this new optional rate.

13 Fourth, we have other miscellaneous rate
14 changes that include Open Access Transmission Tariff
15 updates, to delay to the commercial rate restructure
16 and new rates nomenclature, plus minor language
17 changes to certain tariffs and rules. We also have
18 information on items related to certain programs and
19 fees. Eric Poff will cover those items at the next
20 part of the presentation. Next slide, please.

21 Why are these rate increases required?
22 This proposed adjustments are needed because, like
23 many other businesses, it costs for SMUD to provide
24 services going out, and there are several factors
25 for that. Those include wildfire prevention and

1 mitigation, infrastructure improvements to maintain
2 high reliability, clean energy compliance
3 requirements and mandates, increased operating costs
4 including material and labor costs. Next slide,
5 please.

6 Now, I'm going to provide you here with an
7 illustration of how these proposed rate increases
8 will be reflected on customer bills. This slide is
9 a comparison by type of customers from those
10 proposed changes in Year 2022 and 2023. There are
11 several numbers here, and I just want to walk you
12 through some of them to illustrate that.

13 For example, the first row we highlighted
14 in orange displays the average residential customer
15 bill currently at about \$126.44 at 750 kilowatt
16 hours per month. So the estimated monthly impact
17 for that average customer in 2022 is estimated to be
18 \$1.91 with an additional \$2.57 in Year 2023.

19 As you see on the table, we are also
20 providing illustrations of our commercial customers.
21 For example, you see after the orange line, the
22 small commercial, the range is from 20 to 299 kW.
23 Just to give you a perspective, those could be a
24 small gas station, a coffee shop, a restaurant.
25 Those will see an average monthly impact of about

1 \$44 in the first year, in 2022, and \$59 in the
2 second year, in 2023.

3 For the rest of the commercial customers,
4 their average bill impact varies depending on their
5 size, as you see in this slide. This covers the
6 bill impact portion of the recommendation. The next
7 slide, please.

8 Now, this chart is a very important chart.
9 It displays the average -- (inaudible) for kWh.
10 This is a typical benchmark used to compare utility
11 rates. I want to note that not only are our rates
12 among the lowest in California, as you can see by
13 the orange bar at the bottom, but we're also one of
14 the cleanest utilities in the nation, and we are
15 committed to eliminating 100 percent of greenhouse
16 gas emissions from our power supply by 2030.

17 In the chart, as I mentioned earlier,
18 you'll see SMUD is highlighted in orange -- in the
19 orange part toward the bottom to illustrate that
20 we're one of the lowest. And just to give you a
21 perspective, those lower rates translate into about
22 \$800 million per year in electric bills that our
23 customers save compared to Pacific Gas & Electric.
24 The next slide, please.

25 Now, the next slides are part of the

1 second part of the recommendation, the new
2 solar-and-storage rate. Eric Poff will provide the
3 details of that recommendation.

4 SMUD STAFF ERIC POFF: Thank you, Alcides.

5 My name is Eric Poff. I am the director
6 for Substations, Metering and Telecommunications.

7 And I just want to start by saying I've
8 been working on this rate design with the rates team
9 for the last two years, and I just want to say what
10 a privilege it has been working with them, and I
11 feel very honored to be able to present this to the
12 board this evening. So why don't we go ahead and
13 get started.

14 And before we kind of jump into the actual
15 solar-and-storage rate, I think it's important to
16 talk about where we've been and where we're going.
17 And where we've been is Net Energy Metering 1.0, and
18 over the last 23 years or so we have invested
19 \$250 million into the solar industry to bring it
20 from its early, nascent days into the thriving
21 industry it is today. Over those 20-plus years, we
22 have adopted 36,000 solar customers and 300
23 solar-and-storage customers.

24 So you're going to hear quite a bit this
25 evening about this \$25 million, and there's really

1 two purposes behind this. The first purpose is,
2 obviously, we want to encourage our customers to
3 adopt solar with storage, and really this ties back
4 into our 2030 Zero Carbon Plan. We think by
5 partnering with them, we can really unlock the full
6 value of the storage unit and help us achieve
7 meeting those evening peak loads without having to
8 dispatch our traditional gas-fired power plant.

9 But the second purpose is really to
10 transition the business model for the solar
11 industry. Currently built on subsidies, we want to
12 transition this business model to a sustainable
13 business model while it's providing great benefits
14 for all of our customers.

15 So we think we can take that current
16 300 solar-and-storage customer number and take it to
17 30,000 solar-and-storage customers by 2030 and
18 double the amount of solar-only customers. And,
19 again, these are just targets. If we exceed them,
20 that's great. These aren't like cap limits or
21 anything like that. All right. Next slide, please.

22 So just one more quick slide here on kind
23 of where we've been and comparing that to the
24 proposal, the new proposal rate. Again, this --
25 we've helped transform the market. We've invested a

1 quarter billion dollars into the rooftop solar
2 industry since 1998. And that's when, as Jennifer
3 mentioned, the state mandate went into effect. We
4 met that state mandate back in 2017, and over these
5 literally past four years, we have been evaluating
6 how best to go from NEM 1.0 to the new
7 solar-and-storage rate.

8 So why are we doing this at all? Why is
9 SMUD taking this on? Well, it is -- it really comes
10 down to -- one piece of it is subsidies, right? And
11 one piece of that subsidy is we are currently paying
12 a two-X multiplier for that value of solar. As
13 Jennifer mentioned, we are paying 13 cents, and our
14 Value of Solar Study comes in that -- where we
15 should be paying 7.4 cents. And this creates a
16 caution for those non-solar customers and especially
17 for our under-resourced customers.

18 And so just a little bit more on the past:
19 We are kind of behind the curve. If you look at our
20 neighbors, Turlock and Modesto and Roseville, they
21 all transitioned away from NEM 1.0 three, four years
22 ago. And if you look -- you know, the CPUC is
23 currently holding our NEM 3.0 proceeding. So this
24 is where we think -- this is the right time for the
25 change.

1 So real quick, on the right I would say
2 that \$25 million investment is truly this idea of
3 instead of it just benefitting some customers, we
4 are going to bring environmental benefits,
5 resiliency, just a tremendous amount of grid
6 benefits by partnering with our customers that adopt
7 solar and storage. Next slide, please.

8 So I really like this slide because it
9 really talks in outline about the last two years in
10 detail, and I'll go through this quickly. But this
11 was a journey that started back in October 2019 with
12 our Technical Working Group that was made up of
13 20 different stakeholders; over half of them were
14 from the solar industry and environmental industry.
15 And we locked ourselves in a room for over 40 hours
16 over four months, and we came out with an agreement
17 of 24 value components that would go into the Value
18 of Solar Study.

19 We put out a competitive bid. E3 was the
20 successful bidder for that, and they took six months
21 and did a completely independent Value of Solar
22 Study based on the inputs from the Technical Working
23 Group. And they came back with a range -- and this
24 is really important. They came back with a range
25 between the value of solar within SMUD's service

1 territories between 3 cents and 7.4 cents.

2 Staff is recommending the absolute maximum
3 value of the value of solar of 7.4 cents as the
4 export compensation rate.

5 Back in July, the board made some
6 significant changes to Strategic Direction 2 or what
7 we call SD2. If you're on the phone not knowing
8 what that is, that is the board's guidance to staff
9 on how to do rate design. And if you look at those
10 revisions, you can draw a direct line back to the
11 solar-and-storage rate proposal.

12 And then, obviously, the 2030 Zero Carbon
13 Plan, think of the solar-and-storage rate as that
14 vehicle. It's not going to get us all the way
15 there, but it is very much designed to help us
16 achieve our 2030 Zero Carbon Plan.

17 Then, finally, in October 2020, the board
18 did, I thought, something really interesting. They
19 came to staff, and they said, "Staff, go meet with
20 the solar industry and come up with a win-win
21 solution." So let's talk about that a little bit
22 more. Next slide.

23 I remember this really specifically. This
24 is when Paul just became our CEO. This was one of
25 his earlier tasks, if not his first. And he spent

1 40 hours of his time as our new CEO, and he met with
2 each one of these ten different organizations here
3 you see on this slide. And he said, "Please sit
4 down with my staff and do the hard work, roll up
5 your sleeves, and come up with a win-win solution."

6 Now, I would love to tell you that all ten
7 of these folks said, "Yes, let's do that." Well,
8 that's not true. Over half of them did. And for
9 them, we want to thank them for spending over
10 630 hours with staff to develop this win-win
11 solution we're going to go over tonight. Next
12 slide.

13 So, okay, you spent 630 hours. What were
14 you all doing? So this is kind of -- I really like
15 this slide because it talks about the compromise.
16 You know, tapping back to 2019, SMUD recommended a
17 grid access charge. Our current solar sizing limit
18 is 100 percent of usage: no storage incentive, no
19 virtual solar.

20 So what we heard from the industry was no
21 grid access charge, no sizing limits, no changes to
22 self-consumption, we want a VNEM program. That's
23 Virtual Net Energy Metering, if you're not familiar
24 with that term.

25 So what came out of it is in the green

1 box. This proposal does not have a grid access
2 charge. We have increased our solar sizing limit to
3 110 percent. That \$25 million of incentives really
4 taps back to that, you know, no changes to
5 self-consumption but really increasing the amount of
6 self-consumption that is happening at that
7 behind-the-meter resident because of the storage
8 unit. And we're very excited to talk about our VNEM
9 program that's specifically targeted to our
10 under-resourced community. Next slide.

11 So this is really important. If we have
12 anybody on the phone tonight that's listening that's
13 a current SMUD NEM 1.0 customer, we are recommending
14 to the board that all existing solar customers get
15 those continued NEM 1.0 benefits through 2030,
16 really foundational; it's really key.

17 Now, the new solar storage rate, we are
18 recommending an effective date, January 1st, 2022,
19 to all customers interconnecting on or after that
20 date would go on to the solar-and-storage rate.
21 And, again, I can't say this enough: It is to
22 accelerate that storage adoption curve. Instead of
23 having to wait several years down the road where we
24 think there's going to be mass adoption of storage,
25 we want that mass adoption storage now, in 2022.

1 And, again, we are very excited about partnering
2 with those customers that adopt storage and
3 unblocking of all that value that the storage unit
4 has.

5 So let's go into some of the nuts and
6 bolts. I mentioned the 7.4 cents. That's going to
7 be the export compensation rate no matter what time
8 of day or what season it is. We are committed to
9 re-looking at this every four years. And we're
10 putting parameters around this that the rate is not
11 going to be impacted by plus or minus 30 percent,
12 and we're really going to be looking at what is
13 happening in the market to drive those decisions.

14 And staff is going to implement an
15 interconnection fee for most residential customers.
16 That will be \$475 and really -- and that will be
17 effective January 1st, 2022, and this has got no
18 revenue basis to it. It is all direct recovery to
19 have that SMUD employee roll out to the house or
20 that engineer to review the designs and to get the
21 person interconnected in our system. All of those
22 hours roll up to \$475. Next slide.

23 So let's talk about that 7.4 cents. It is
24 really -- think of it as a value stat. When we
25 think about our behind-the-meter rooftop solar

1 customers helping us displace some of that thermal
2 generation, those traditional gas-fired power
3 plants, well, there is a voided cost associated with
4 that. SMUD doesn't have to buy gas. It doesn't
5 have to provide carbon allowances. It doesn't have
6 to make capacity payments. So all of that is in the
7 7.4 cents per kilowatt.

8 So one thing in particular that's a little
9 unique is that we are recognized -- the unique
10 indirect benefit of having to go out and disturb
11 land for a utility-sized solar. So that indirect
12 benefit is also rolled into that 7.4 cent number.
13 Next slide.

14 As Jennifer mentioned, we did hear some
15 concerns, and so we wanted to take these head-on.
16 And we put them into -- let's call them categories
17 or themes I think is a better word. So four
18 different themes that we heard. And this is from
19 both, you know, the solar industry and from
20 customers.

21 And so this one came up quite a bit, and
22 so let's go into these. And staff, we were very
23 committed when we were trying to address these
24 concerns to just answer with data and kind of leave
25 the conjecture out of it. So these are very much --

1 supposed to be data-driven answers, so.

2 The one concern we had was the NEM 1.0
3 rate, the recommendation that it was going to go
4 through 2030 isn't long enough. We had customers
5 saying that needs to go on for 15 years, 20 years.
6 We had one customer say 40 years, right? So they're
7 concerned that 2030 is not long enough.

8 So we took this perspective when we kind
9 of said, okay, what does the data say? We thought
10 about that last solar customer that interconnects,
11 let's say, December 31st of 2021, what would their
12 payback look like at the end, on December 31st,
13 2030. And when we ran the numbers and the averages,
14 it came out that 95 percent of that system would be
15 paid off by this 12/31/2030 date.

16 So you can think about the remaining other
17 36,000 solar customers, their systems for a vast
18 majority of them are going to be paid off by that
19 time.

20 So a lot of numbers here on subsidies.
21 You can read through these. I just want to pull out
22 one number to kind of -- hopefully you remember and
23 it kind of sticks. And that number is \$10 million.

24 So the idea of extending beyond the staff
25 recommendation of 2030, it has a price tag, and that

1 price tag is \$10 million per year for every year we
2 extend the existing 36,000 NEM customers, so just
3 want to make sure everybody understands that. And
4 we are -- again, from staff's perspective, we are
5 looking at this as a fairness and equity issue.
6 These are just the facts. These are the numbers,
7 right, 36,000 residential solar customers. Out of
8 that, only 2,000 of them are from under-resourced
9 communities or EAPR customers. And SMUD, with its
10 valuable relationship with grid alternatives, has
11 funded, you know, 125 of those as well. So next
12 slide.

13 So payback period, I would say this was
14 the most prominent concern. If I had to rank and
15 file these, I would put this one first. So we heard
16 this from the solar industry: Customers won't
17 install solar with a longer payback period.

18 Okay. So we said let's go back at our
19 data, SMUD. And we said we've got great data. You
20 know, the bars, as you can see here, are the number
21 of customers that installed solar systems over the
22 years. And then on the top line chart there, you
23 can see the payback of -- what the payback period
24 was during those years.

25 And so we looked at our own

1 solar-and-storage solution, and our customer is
2 going to take our incentives and become Virtual
3 Power Plant partners with us and unlock all of that
4 value of the storage unit; that payback period is
5 about 12 years. So we said, well, gosh, back in
6 2016, 2015, 2014 -- this chart goes way far left; we
7 tried to keep it so everybody can see it --
8 thousands and thousands and thousands of customers
9 interconnected with a 12-year or greater payback
10 period.

11 But there's also a little bit -- you know,
12 a trend here that I would also point out on this
13 graph. It's sloping down, and that can be directly
14 tied back towards lowering PV costs. So you can
15 kind of imagine, right, '22, '23, as PV and storage
16 continues to lower; that 12-year payback on the new
17 solar-and-storage rate will become 11 years and
18 10 years as time goes on. All right. Next slide.

19 So we heard this one as well; so I'd
20 probably say this is the second most prominent
21 concern we've heard from solar industry, is that if
22 you reduce the rate of -- for excess solar, is it
23 going to harm the solar industry?

24 So, again, we were committed to
25 data-driven, you know, research. We reached out to

1 Modesto. We reached out to Roseville, and we'll get
2 into those charts in a little bit. We said, "What
3 happened, Modesto, when you implemented your NEM
4 2.0?" And so they gave us the graph and very
5 thankful if anybody is listening from Modesto.

6 So they implemented NEM 2.0 back in 2017.
7 They had a 7.6 cent per kilowatt export
8 compensation. Our recommendation is 7.4. They did
9 not have a glide path. We are not recommending a
10 glide path. And you can see a steady increase in
11 solar installation. And if you take a look at 2021,
12 that's just the year-to-date number, January through
13 July, like, if that trend continues through the rest
14 of the year, that could be their best year ever, so.

15 And a couple of other things I'll just say
16 just as a quick point of contrast, you know, Modesto
17 is not recommending \$25 million of storage
18 incentives. Modesto is not recommending virtual
19 solar. So those are other, I think, tailwinds, I
20 would say, in our recommendations. Next slide.

21 Okay. Same thing, Roseville, they
22 implemented their successor rate 2018, and they had
23 a 5.98 cent export compensation rate and no glide
24 path, like we're recommending no glide path, and you
25 can see a definite steady increase of solar

1 installs. And look at that year-to-date number in
2 2021: 1,157 installs from January to July. They
3 are going to have their best year ever pre-successor
4 rate or post-successor rate, right?

5 And, again, I'll contrast with, you know,
6 Roseville did not implement, you know, storage
7 incentives; they're not implementing virtual
8 storage. And I will also add their interconnection
9 fee is about 40 percent higher than what staff
10 recommends. Next slide.

11 So we heard this concern too -- and,
12 again, you know, that battery storage is not ready
13 for mass adoption. There are concerns that we are
14 going to do all of this incentivized storage, and
15 the storage units aren't going to be there.

16 So we did our best research we could
17 here -- and, again, not to call out Tesla, but it's
18 hard not to, you know, call on one of the largest --
19 world's largest battery manufacturers. So we were
20 listening to Tesla's Q2 2021 earnings call, and they
21 are targeting a production of one million Powerwalls
22 per year by the end of 2022. To put that in
23 perspective, there are only 200,000 storage units in
24 the world. So that's like a five-X multiplier. So,
25 yes, there is global demand for storage units. We

1 recognize that. Tesla and other battery
2 manufacturers are increasing storage production
3 because of this global demand, so. Next slide.

4 So, real quick, I'll finish up on these
5 kind of comparisons again. I talked about these two
6 charts back in May, but I thought we would bring
7 them out one more time. Internal rate of return,
8 you know, don't worry about that financial
9 instrument. Think about this as, you know, you have
10 a CD or your returns on your investments, you know,
11 stock investments. So that's kind of what this
12 represents.

13 And we recognize that under NEM 1.0 solar
14 only, over the life of the unit has an investment of
15 9.9 percent, a really good return. So we did that
16 same analysis for solar and storage -- and, again,
17 taking advantage of our incentives, become a VPP,
18 you know, Virtual Power Plant, partners with us, and
19 that rate of return for the life of the system came
20 back at 8.7 percent. We fully recognize it is not
21 as high as 9.9 percent, and you can see that play
22 out with a couple of additional years of a payback
23 period.

24 But there is some contrast here that, you
25 know, there's not the level of subsidies involved

1 under NEM 1.0, and there's this customer-wide
2 benefit of storage and really helping us achieve the
3 2030 Zero Carbon Goal.

4 And let's took a quick chart look here on
5 the right. So we think customers that are willing
6 to adopt these technologies, solar and storage, and
7 join us as Virtual Power Plant partners, we can
8 remove one metric ton out of that average household
9 usage. That -- if we hit our, you know -- if what
10 we are forecasting, the 30,000 customers, if we hit
11 that, that would be equivalent to removing 7500
12 gasoline cars off the road. Next slide.

13 So, real quick, want to support -- want to
14 really thank a few of our public supporters, the
15 first being NRDC, Natural Resources Defense Council,
16 for publicly supporting this innovative solution.
17 And I really like Mohit, what he put here, is that:
18 We engaged in a transparent, stakeholder-driven
19 process to develop the solution. You know, he
20 refers to this, a little bit later in the paragraph,
21 as generous because we are not including any fixed
22 charges for solar customers. And unlike what's
23 happening at the CPUC, that process is still going,
24 we don't know what's going to happen for sure, but
25 they are looking at fixed charges so that non-solar

1 customers are -- don't have to pay any undue rate
2 increase. Next slide.

3 We also want to do a big thank you to
4 Environmental Defense Fund for also publicly
5 supporting this rate design. It is leveraging --
6 step in the right direction, Michael refers to it,
7 and really -- (inaudible phrase) help achieves our
8 zero carbon plan. Next slide.

9 Okay. So I'm not going to read all of
10 this for time's sake, and it's actually going to get
11 read into the public record after this, but we are
12 very, very proud of this public endorsement from
13 Severin Borenstein. For those who are in the rate
14 design world, he needs no introduction. He's truly
15 one of the thought leaders in rate design. And if
16 you're not familiar with Severin Borenstein, he's
17 the business administration and public policy
18 professor at the Haas School of Business and faculty
19 director of the Energy Institute of Haas.

20 So he called out a couple of things here
21 that I would like to just call out. And he, again,
22 refers to this as we are being optimistic in our
23 evaluation of distributed energy resources, but he
24 also refers to SMUD as a leader in this area, and he
25 really thinks that the Critical Peak Pricing is a

1 really good move to address the times when the grid
2 is most stressed. Next slide.

3 So let's talk a little bit more about that
4 Critical Peak Pricing and some other minor
5 miscellaneous rate changes. So I want to emphasize,
6 totally optional, residential Critical Peak Pricing
7 rate, customers who have a smart thermostat,
8 customers who have solar and storage, storage-only,
9 solar-only all can participate, completely optional.

10 And what we are doing is we are providing
11 a discount on off-peak and mid-peak hours for
12 customers that opt into this rate. And then if you
13 are on this rate, if SMUD declares a Critical Peak
14 Pricing event, there will be a premium for energy.
15 And it's a purposeful price signal to encourage
16 those customers with a smart thermostat to conserve
17 energy and don't use as much energy; and for those
18 customers with storage, to dispatch their storage
19 unit to maximize the return on investment for the
20 storage unit.

21 So we are going to be implementing this
22 during -- only during summertimes, June through
23 September. The events will be anywhere between one
24 to four hours, and we are committed to not having
25 more than 50 hours per summer. Next slide.

1 So not much to talk about on this one.
2 Open Access Transmission Tariff update, it does not
3 impact any SMUD residential and commercial retail
4 customers. This is part of the official rate
5 recommendation and required to be part of the dec.,
6 so. Next slide.

7 All right. Real quick, I want to talk
8 about new programs that support -- and I really want
9 to emphasize what Jennifer said earlier about the
10 beauty of programs being able to react to what's
11 really happening in the market.

12 So the board, Paul, the executive team --
13 I call it the gas pedal and the brake pedal. If
14 we're not seeing what we want to see and meeting our
15 milestones for adoption, you know, these programs
16 can be adjusted to try to accelerate growth. Next
17 slide.

18 So \$25 million, again, this program that
19 I've mentioned more than once, this is a little bit
20 more of a granular fashion. We recognize that we
21 want to give customers options. Not everybody is
22 going to want to be at that, you know, Virtual Power
23 Plant level.

24 So the first one is the \$500, and this is
25 for that customer that wants storage, but they

1 really want to just use it on their own. They want
2 to reduce their peak, and so we're incentivizing
3 that. That's a win-win. They're lowering their
4 peak, which is going to lower our peak, so win-win
5 solution there.

6 I already talked about Critical Peak
7 Pricing, and we're going to provide up to \$1500 to
8 help reduce those initial costs for storage for
9 customers willing to adopt storage and go on
10 Critical Peak Pricing.

11 But this piece, again, is the \$2500, and
12 this is what we really want our customers to
13 gravitate to and become Virtual Power Plant partners
14 with us. It's really important to identify not only
15 is it the highest incentive, but there is going to
16 be ongoing payments for customers to participate in
17 this program. Think of it as like a capacity
18 payment for the customers. So we're really excited
19 about rolling this out.

20 And I do want to share one little side
21 story here. You know, we look at Austin Energy as
22 being leaders and innovative thinking in rate
23 design. And, unprompted, they reached out to us,
24 and they said we heard the buzz about SMUD's
25 leadership in this area, and we want to learn more

1 about your rate design and storage program. So that
2 was very rewarding for us, to have somebody like
3 Austin Energy that we look at as a sister utility as
4 being -- you know, always thinking about green
5 renewables and forward-thinking to reach out to us
6 to learn about our leadership in this area. Next
7 slide.

8 Okay, last slide. The Virtual Solar
9 Program -- and, again, this is -- I mentioned this
10 earlier. These types of technologies have not been
11 as prominent in under-resourced communities as they
12 have been in other communities. And this is SMUD's
13 commitment to ensure that our under-resourced
14 multi-family dwelling communities have access to
15 these technologies.

16 So if you're not familiar with Virtual
17 Solar, often referred to as VNEM in the industry, it
18 works like this from a super-high level: If you
19 have on-site solar at their multi-family dwelling
20 community, SMUD is going to buy all of that energy
21 that it produces, and it's going to turn around and
22 provide a bill credit for all of those customers
23 that live in those multi-family dwellings. And then
24 those bill credits will be on top of or in addition
25 to any EAPR or med rate discount that they're

1 already getting. Okay. Next slide.

2 And now I want to turn it over to Rhonda
3 for the public outreach process.

4 SMUD STAFF RHONDA STALEY-BROOKS: Thank
5 you, Eric.

6 Good evening, all. My name is Rhonda
7 Staley-Brooks, and I'm the manager of Community
8 Relations, Outreach, and Events for SMUD. And I am
9 here to share the strategy used for our outreach,
10 share how many customers we reached, and provide the
11 feedback that we received. Next slide.

12 So as you can see here from this slide,
13 SMUD uses a variety of tools to outreach directly to
14 our customers, members of the community, and other
15 stakeholders. We always offer to meet them where
16 they are at. We recognize many of our external
17 partners' meeting schedules have been put on pause
18 or altered during the pandemic.

19 So when a meeting wasn't available, we
20 provided our stakeholders with extensive resources
21 to share with their constituents. We gave them fact
22 sheets, plug-and-play content for their newsletter,
23 and other materials to reach the widest possible
24 number of people with information about the proposed
25 rate changes.

1 In addition to the personal outreach we
2 made to a range of people and organizations, we cast
3 a very wide net to make sure our customers and other
4 stakeholders were aware of the rate action. This
5 includes press releases and social media posts,
6 extensive information on our website, and also
7 public notices. We translate our materials into
8 multiple languages, and we trained our staff on the
9 key aspects of the rate proposal so that they can
10 answer questions from customers and others. Next
11 slide.

12 So on this slide it shows the extensive
13 public outreach during the rate action to reach as
14 many people as possible to let them know about the
15 proposed changes and invite feedback and questions.
16 We sent more than 256,000 emails to our customers,
17 community organizations, and leaders, and to those
18 who subscribe to our LISTSERVs.

19 We called or emailed more than 1200
20 community and business organizations with
21 information about our rate proposal and offered to
22 meet them and their constituents. We provided fact
23 sheets and other information to more than 300
24 community and business partners to share, and we
25 presented to 49 community organizations and

1 neighborhood associations and expect to complete 55
2 by the end of the rate action. Finally, we shared
3 this information packet and offered to meet with 55
4 elected officials. Next slide.

5 So what did we hear from our customers and
6 stakeholders in these meetings? All of our teams
7 from rates sustainable communities, residential
8 assistance, SAAs and outreach made many personal
9 calls because organizations we have historically met
10 with provided feedback that this rate action isn't
11 significant enough to warrant a meeting with their
12 constituents.

13 It wasn't unusual for us to hold a meeting
14 where there weren't any questions, but there was
15 appreciation for SMUD's partnership and proactive
16 outreach to make sure our customers were aware of
17 the proposed changes.

18 As Jennifer mentioned, we received
19 significantly less feedback from our customers than
20 we did during the 2019 rate action when we
21 originally proposed a grid access charge for solar
22 customers. We had about 340 people attend our
23 community meetings or our public workshops. We
24 received 47 calls and emails from customers about
25 the proposed rate changes prior to this dec. being

1 turned in. And since Friday, we have addressed an
2 additional 44 emails from the solar industry.

3 Comments at rate workshops and community
4 meetings were varied and covered a wide range of
5 topics. So I'm going to tell you some of the things
6 that we heard.

7 There were questions that came out that
8 were tied to the pandemic, specifically the impact
9 of rate increases on those already unable to pay
10 their bills.

11 Questions and comments about the proposed
12 solar-and-storage rate mirrored the concerns shared
13 by the solar industry, which Eric addressed earlier.
14 They were moderated in many cases when customer
15 learned that they can stay on the current rate
16 through 2030.

17 We received a lot of questions about how
18 to participate in the new programs, such as VNEM,
19 and questions about whether we can expand VNEM
20 beyond under-resourced communities.

21 A lot of questions around what is CPP and
22 how does it work and how can I participate. And
23 others were just appreciative that we were making
24 changes to the Net Energy Metering. Overall, our
25 community and public meetings were very positive or

1 neutral with very little concern about the proposed
2 rate increases. Next slide.

3 So here is our upcoming schedule. So the
4 final vote will be on September 16th, but there's
5 still time to provide your feedback. So you can get
6 more information about the rate information on
7 SMUD.org\RateInfo. You can also email your
8 questions and concerns, or, if you're a commercial
9 or residential, you can reach out to us via phone.
10 All of the information, especially tips on energy
11 management, can be found on SMUD.org. Next slide.

12 So this is our presentation for tonight.
13 We have a lot of subject matter experts on the phone
14 to take the questions. And I'll return it back to
15 you, President Bui-Thompson.

16 BOARD PRESIDENT BUI-THOMPSON: Great.
17 Thank you so much. I appreciate all of the
18 presentations. I don't think people realize how
19 many presentations we've done.

20 So I think at this time we've received
21 requests for additional time to provide alternative
22 rate proposals. We have Mr. Graham that will
23 propose an alternative, and he has five minutes to
24 present his comments.

25 PUBLIC MEMBER MARK GRAHAM: Just one

1 second here. Can you hear me?

2 BOARD PRESIDENT BUI-THOMPSON: Yeah, I can
3 hear you. I think they're trying to fiddle with the
4 timer.

5 It should be five minutes, correct?

6 PUBLIC MEMBER MARK GRAHAM: It should be
7 five minutes; that's true.

8 BOARD PRESIDENT BUI-THOMPSON: It looks
9 like someone is trying to change the timer; waiting
10 for that.

11 Is someone working on the timer, or are we
12 going to time separately what's on the screen?

13 You had slides, Mr. Graham, correct?

14 PUBLIC MEMBER MARK GRAHAM: True. I sent
15 them to you and --

16 BOARD PRESIDENT BUI-THOMPSON: Yeah, I
17 think we saw them -- (inaudible).

18 So I guess we'll run the timer separately,
19 whoever is responsible for timing.

20 SMUD STAFF JOSUE SWAY GARCIA: Correct.
21 We are running the timer separately.

22 BOARD PRESIDENT BUI-THOMPSON: Okay. So
23 we'll get to his first slide. Do you want to get to
24 his first slide?

25 Okay. You can start, and we will start

PUBLIC HEARING ON PROPOSED RATE ACTION

1 the timer off-line. We'll give you -- if someone
2 could give him a minute warning to wrap up in a
3 minute, that would be great.

4 PUBLIC MEMBER MARK GRAHAM: Can you
5 display the timer?

6 BOARD PRESIDENT BUI-THOMPSON: Not and
7 your slides at the same time. Would you like the
8 timer or your slides?

9 PUBLIC MEMBER MARK GRAHAM: Well, the
10 board needs to see my slides.

11 BOARD PRESIDENT BUI-THOMPSON: Okay.
12 Let's start the timer, and we will give you a
13 one-minute warning when you have one minute left.

14 PUBLIC MEMBER MARK GRAHAM: Okay.

15 All right. Madam Board President, board
16 members, staff, my name is Mark Graham. I live in
17 Elk Grove. Next slide, please.

18 President Bui-Thompson, you should have
19 given me a total of ten minutes to address the board
20 tonight on the proposed rates and my alternatives,
21 just as Board President Dave Tamayo gave me a total
22 of ten minutes at the 2019 rate hearing as
23 authorized by Ordinance 15-1.

24 I wrote to the board on June 18 and
25 August 15 and explained most or all of this and

1 again yesterday. Directors, if you haven't read my
2 emails, please read them ASAP from start to finish.
3 Please ask me questions at the end of my
4 presentation.

5 Here is the issue: The board should
6 discuss this issue tonight and the legal basis. The
7 current SMUD rates are taxes as defined by the
8 California Constitution, Article XIII C. This is
9 because of a fudge factor known as a scalar --
10 that's S-C-A-L-A-R -- of 9.2 percent that SMUD added
11 to its overall marginal cost when it created the
12 original time-of-day rates. Think of the scalar as
13 gravy, but it is forbidden gravy; it is
14 unconstitutional gravy. That fudge factor is still
15 baked into SMUD's rates.

16 The CEO and General Manager has proposed
17 that you extend and increase these rates for the
18 next two years. SMUD may not do this without board
19 approval. Next slide, please. I'm asking the
20 board -- next slide, please, the third slide. Thank
21 you.

22 I'm asking the board to have a board
23 discussion tonight about the legal basis for the
24 SMUD scalar and identify a California law or court
25 opinion that supports and authorizes SMUD adding a

1 9.2 percent scalar, or any significant scalar, into
2 its rates. Direct your staff to identify that legal
3 authority tonight.

4 At the 2019 rate hearing, staff provided a
5 couple of irrelevant excuses to divert the board's
6 attention away from the main issue. All of you were
7 here, all of you, and none of you noticed and spoke
8 up. You need to say to staff, "That does not
9 matter. That is irrelevant. What is the legal
10 basis in statute or case law for SMUD inserting its
11 fudge factor into our rates?" And repeat the
12 question until staff gives you a relevant and
13 truthful answer.

14 Just because utilities in other states use
15 scalars does not mean that SMUD can use them. That
16 does not matter. It is irrelevant. Just because
17 the Public Utilities Commission lets the
18 investor-owned utilities use scalars does not mean
19 you can do it. That is irrelevant, and it does not
20 matter.

21 Staff's other irrelevant diversion in 2019
22 was this: Ms. Jennifer Davidson told the board that
23 the proposed rates were based on your embedded
24 costs. That was a false statement. SMUD does not
25 have any records that talk about embedded costs, but

1 it doesn't matter what you call it. Whether you
2 call it marginal costs or embedded costs, the
3 requirement of Article XIII C is the same, and that
4 is you need to have voter approval when your rates
5 exceed your reasonable cost of service. Next slide,
6 please.

7 This is the voter approval requirement.
8 You're not planning to have any voter approval or
9 any vote. Next slide, please.

10 This explains why the current rates are
11 taxes. And when you pay a tax and you extend and
12 increase it, that violates Article XIII C.

13 I should note, the System Infrastructure
14 Fixed Charge is also attached because it also has
15 the scalar built into it.

16 Every director should read the 2020 Rate
17 Costing Study dated March 31, 2020, from cover to
18 cover. Directors, please get your copy of the study
19 and read it by Friday night, this Friday. You need
20 to be familiar with it. It is not a rate design
21 study, and it does not cost justify the proposed
22 rates. Next slide, please.

23 This is part of the California
24 Constitution on -- that you may not impose, extend,
25 or increase a special tax without two-thirds

1 approval of the voters. Next slide, please.

2 This is what it means to extend or
3 increase a tax for California law --

4 SMUD STAFF JOSUE SWAY GARCIA: Mr. Graham,
5 one minute is left on the timer.

6 PUBLIC MEMBER MARK GRAHAM: I beg your
7 pardon?

8 SMUD STAFF JOSUE SWAY GARCIA: One minute
9 for the timer.

10 PUBLIC MEMBER MARK GRAHAM: All right.
11 Next slide, please.

12 And, again, the last -- the 11th slide is
13 my alternative recommendation, and you have that,
14 and that is for you to back the scalar, plus all of
15 the increases that have been added to it, out of the
16 rates, and then do your 1.5 and 2 percent increase.

17 On Slide Number 9 -- next slide, please --
18 there's only been one rate design study on the time
19 of use rates, and that is the 2018 Residential
20 Time-of-Use (RT02) Design Study. Please read that
21 cover to cover. That design study proves that the
22 original Time-of-Use rates exceeded SMUD's marginal
23 cost of providing electricity by 9.2 percent.

24 What you need to do, Board, is acknowledge
25 that that -- that time-of-use rate design study and

1 the fact that it shows your original time-of-day
2 rates were 9.2 percent over your costs, and identify
3 a court order or court opinion tonight at this
4 meeting that authorizes SMUD to put a scalar, a
5 fudge factor, into your rates. I'm talking about
6 tonight at this meeting or at the absolute latest
7 prior to when the board votes on the proposed rates
8 in September. Next slide, please.

9 SMUD STAFF JOSUE SWAY GARCIA: We are at
10 five minutes, Mr. Graham.

11 PUBLIC MEMBER MARK GRAHAM: All right.
12 Thank you, Board.

13 BOARD PRESIDENT BUI-THOMPSON: Great,
14 thank you.

15 At this time we will take comments from
16 the public on the CEO and General Manager reports.

17 So we have the list, right, Laura?

18 SMUD GENERAL COUNSEL LEWIS: Yes.

19 And I couldn't find the feature to raise
20 my hand, but I would like to just briefly respond to
21 Mr. Graham's claims that we're in violation of
22 Prop. 26 if I could --

23 BOARD PRESIDENT BUI-THOMPSON: Sure.

24 SMUD GENERAL COUNSEL LEWIS: -- just for
25 the record.

1 So just as a way of background, Prop. 26
2 does allow SMUD to charge rates that do not exceed
3 our cost of service. And our cost to serve are
4 based both on our marginal costs as well as our
5 embedded costs.

6 Our marginal costs are determined by what
7 we call a rate costing study that Mr. Graham
8 referred to, and that marginal cost is basically the
9 cost to add a single new customer to our system.
10 And we determine marginal cost by looking at our
11 marginal cost components, and these are costs that
12 SMUD incurs to generate, transmit, and deliver
13 electricity to each new customer.

14 However, not all of our costs are marginal
15 costs. We incur some costs that are independent of
16 generation and delivery and don't change based on
17 the number of customers. A great example would be
18 our wildfire mitigation costs. And as you know,
19 it's become a significant cost for SMUD in recent
20 years. Adding one customer won't on its own affect
21 how much we spend on wildfire mitigation. That's
22 why it's not captured in the marginal cost
23 calculation that Mr. Graham refers to. This
24 combined cost, again, is often referred to as our
25 embedded cost.

1 The scalar that Mr. Graham refers to --
2 essentially when SMUD recovers its costs, we -- we
3 have a revenue requirement, and that's basically how
4 much money we need to cover our expected costs as
5 reflected in our budget. Again, it includes both
6 the marginal costs components and other non-marginal
7 costs or embedded costs such as, again, wildfire
8 mitigation.

9 And so to ensure that we can pay our
10 non-marginal costs that are not captured in the
11 marginal costs study, we apply a scalar to cover the
12 non-marginal costs and match our revenues with our
13 expenses. And so use of this scalar is very common
14 with utilities and is an acceptable way of rate
15 making. So that's all to say that we are quite
16 confident that we have complied with Prop. 26.

17 And I would just add that Mr. Graham has a
18 pending lawsuit where he's made these same
19 allegations, and we are similarly defending
20 ourselves there as well.

21 So hopefully I captured that. I'm sure
22 Jennifer Davidson will correct me because she's
23 really the expert on this, but that's, in a
24 nutshell, what the scalar is and why it's justified
25 under Prop. 26.

1 BOARD PRESIDENT BUI-THOMPSON: Okay.

2 Thanks, Laura. I appreciate that.

3 Brandon, Director Rose, has a question or
4 a hand up or a comment.

5 SMUD BOARD DIRECTOR ROSE: Yes.

6 Just briefly, Laura, can I clarify -- and
7 I believe this is in the rates resolution as --
8 that's currently drafted and proposed -- that this
9 alternative wouldn't meet -- essentially wouldn't
10 meet our revenue requirements and the primary reason
11 that we would reject his proposed alternative. Is
12 my understanding correct?

13 SMUD GENERAL COUNSEL LEWIS: That is
14 correct.

15 SMUD BOARD DIRECTOR ROSE: Thank you.

16 SMUD GENERAL COUNSEL LEWIS: Okay. If
17 there's no more questions, President Bui-Thompson, I
18 can start. Again, we have quite a few speakers
19 lined up, and I think the way we'll handle this is I
20 will announce the first three speakers and continue
21 to do that so people are prepared and know when
22 they're going to be up for comment. Does that work?

23 BOARD PRESIDENT BUI-THOMPSON: Yeah. If
24 you can just kind of tell them in groups, yeah. So
25 let's just announce the first, actually, like --

1 yeah, let's do a little bit more. Let's do the
2 first crop of five --

3 SMUD GENERAL COUNSEL LEWIS: Okay.

4 BOARD PRESIDENT BUI-THOMPSON: -- so that
5 they all are -- they can do the math on the time.
6 And then we'll just do it in groups of five so we
7 can have people plan accordingly.

8 SMUD GENERAL COUNSEL LEWIS: So the first
9 five: Mr. Steve Uhler, Alex Morris, Leah Miller,
10 Frank Lindh, and Jan Smutny-Jones.

11 So Mr. Uhler is first.

12 SMUD STAFF JOSUE SWAY GARCIA: And
13 Mr. Uhler is not in attendance, so next would be
14 Alex Morris.

15 PUBLIC MEMBER ALEX MORRIS: Hi. Can you
16 hear me okay?

17 SMUD GENERAL COUNSEL LEWIS: Yes.

18 PUBLIC MEMBER ALEX MORRIS: Thank you.
19 Please, go ahead.

20 My name is Alex Morris, and I am the
21 executive director of the California Energy Storage
22 Alliance. We are a nonprofit trade association that
23 serves as the voice of the energy storage energy in
24 California, and our mission is to ensure every
25 storage is smartly -- ensure energy storage is

1 smartly considered and valued in California energy's
2 toolkit helping to achieve clean-energy goals.

3 And I'm here to support SMUD's proposal,
4 which was very well stakeholder'd, technically
5 studied, and aligned with SMUD's goals of smartly
6 achieving clean-energy goals and a zero carbon plan.

7 And I also want to say as a major energy
8 storage association and stakeholder in utility
9 regulatory and energy industry policy processes all
10 around the state and federally, I want to
11 acknowledge that SMUD staff, especially Eric Poff,
12 was particularly accommodating in facilitating good
13 public process on these issues. And I appreciate
14 how he and the executive leadership time all --
15 executive leadership team made time to listen to
16 CESA and other stakeholders and to think creatively
17 about finding win-win solutions.

18 I'd like to make a few supporting points
19 and then also had a few points about what CESA and
20 SMUD stakeholders should look for as we proceed.

21 So first and most importantly, adding
22 storage to the grid is critical, not only is storage
23 there when you need it -- and we know we will need
24 it in a solar-heavy grid -- but it also helps
25 customers have choice and control over their energy

1 usage in ways that protect them from grid charges
2 and can provide value back to the grid. And the
3 analysis started to highlight how storage additions
4 are useful and cost-effective for the energy storage
5 system, so I was really happy to see that.

6 I also like how SMUD is planning and is
7 smartly laying out approaches for leveraging energy
8 storage and distributed energy resources. And
9 specifically, once a lot of customers have these
10 storage devices, particularly when the sun sets, you
11 will be able to use them or signal to them how they
12 can provide value to the grid if customers are so
13 willing.

14 And I applaud that SMUD's analysis
15 recognized the benefits of distributed storage and
16 how it works in -- you know, in pair formation with
17 solar where it can really help and capture a federal
18 energy tax credit. So I just wanted to thank you
19 guys for that.

20 And as I look ahead and SMUD moves forward
21 with some of these proposals or considers them, what
22 we would like to continue to see is solutions that
23 allow a dynamic market that provide market signals
24 for adding storage to the grid, that properly value
25 the attributes of solar and storage, and allow

1 meaningful participation periods so -- and that
2 would include reasonable regional grandfathering
3 provisions to protect existing customers who've made
4 investments.

5 I also want to have ways to better value
6 virtual power plants and look at distributed energy
7 resource values.

8 So thank you so much for hearing my
9 remarks and good luck. And I want to thank again
10 Eric and the board and Paul for all of their work in
11 engaging with community members like me. Thank you.

12 SMUD GENERAL COUNSEL LEWIS: Next up, we
13 have Leah Miller.

14 (Upcoming speakers' names announced.)

15 PUBLIC MEMBER LEAH MILLER: This is Leah.
16 Can you guys hear me?

17 SMUD GENERAL COUNSEL LEWIS: Yes.

18 PUBLIC MEMBER LEAH MILLER: Great.

19 Good evening. President Bui-Thompson,
20 SMUD board members and staff, my name is Leah
21 Miller, and I'm the president and CEO of Habitat for
22 Humanity of Greater Sacramento.

23 Thank you so much for the opportunity to
24 speak this evening on behalf of Habitat For Humanity
25 of Greater Sacramento, the families we serve, as

1 well as those in our underserved community.

2 I'm quite proud to say that Habitat For
3 Humanity has been a partner with SMUD for over
4 30 years. Tonight, Habitat For Humanity of Greater
5 Sacramento would like to express our strong support
6 for SMUD's ongoing efforts to keep energy affordable
7 for all income demographics in our community,
8 particularly the commitment to keep energy
9 affordable for Sacramento's most underserved
10 households.

11 On the matter of net metering, we find
12 ourselves quite concerned for Sacramento's
13 low-income households, many of which are living in
14 situations that do not permit them, readily, access
15 to the current benefits of solar technology.

16 However, over the course of time, it's our
17 concern that they may very well be the group of
18 people that bear the brunt of additional costs of an
19 aging electrical system. To keep our low-income
20 neighbors safely housed and able to afford life's
21 most basic necessities, it's very important that the
22 cost of electric service be shared throughout our
23 community.

24 Any increases in the rates are always a
25 concern for Sacramento's low-income residents.

1 However, we understand the reasoning behind and are
2 pleased that are you keeping those increases below
3 the rate of inflation.

4 In closing, I thank you for the
5 opportunity to work together with SMUD through
6 ongoing efforts to meet the carbon-reduction goals
7 of the community and ensure affordable energy for
8 all. Thanks so much.

9 SMUD GENERAL COUNSEL LEWIS: Great. Next
10 up, we have Frank Lindh.

11 (Upcoming speakers' names announced.)

12 PUBLIC MEMBER FRANK LINDH: President
13 Bui-Thompson and members of the board, this is Frank
14 Lindh. Thank you for the opportunity to speak to
15 you this evening. I'm talking about Agenda Item 2,
16 which is the staff proposal for a successor tariff
17 for Net Energy Metering customers.

18 I think staff has brought you a good set
19 of recommendations, and I'll comment on those. But
20 I wanted to mention that by way of background, I am
21 the former general counsel of the California Public
22 Utilities Commission, and the commission, of course,
23 is the state agency that regulates the
24 investor-owned electric utilities in California.
25 And my tenure as general counsel of the commission

1 really was the highlight of my professional life.

2 During my years there at the commission,
3 on more than one occasion, I heard our commissioners
4 speak in public about their admiration for SMUD.
5 And here's what I said when I spoke before the
6 board's finance and audit committee on May 18th of
7 this year:

8 "SMUD has a track record of
9 providing leadership in the drive
10 for decreased emissions of
11 greenhouse gases and other
12 pollutants and for finding customer
13 friendly solutions to the challenges
14 of the industry."

15 So I want to commend staff for their work
16 in bringing forward this proposal tonight, and I
17 think they should be commended not just for the
18 content of the proposal but also for undertaking
19 such an extensive and inclusive stakeholder process.

20 So with respect to that energy metering
21 and the staff proposal, here's my three points:

22 First and foremost, in my mind, is that
23 staff has been responsive to the need for greater
24 equity among customers. The existing Net Energy
25 Metering arrangements are lopsided in favoring

1 customers who have rooftop solar or paired
2 solar-plus-storage arrays, and these are generally
3 wealthier customers. They enjoy subsidies at the
4 expense of lower- and middle-income customers who
5 cannot afford this technology.

6 While the existing Net Energy Metering
7 tariffs made sense when the solar industry was just
8 getting started, the industry is now mature. And
9 the subsidies, meanwhile, have grown in size over
10 time, and so the social justice issue really is now
11 at the forefront.

12 Second, I hope you will approve staff's
13 proposal to institute an interconnection fee for
14 solar customers. A fee of this type is necessary,
15 in my view, to cover the cost of SMUD's system.

16 Third, staff is correct, I believe, to
17 focus economic incentive on solar plus storage
18 rather than on stand-alone rooftop storage. This is
19 because solar plus storage provides significantly
20 better benefits to the grids -- to the grid and
21 reduction in emissions.

22 For this reason -- for all these reasons,
23 I respectfully urge you to adopt the staff
24 recommendations regarding Net Energy Metering
25 reform. Thank you again for the opportunity to

1 address you tonight.

2 SMUD GENERAL COUNSEL LEWIS: Thank you.

3 Next up, Jan Smutny-Jones.

4 (Upcoming speakers' names announced.)

5 PUBLIC MEMBER JAN SMUTNY-JONES: Thank you
6 very much, Chair Bui-Thompson and members of the
7 board. I'm Jan Smutny-Jones. I'm a proud SMUD
8 customer and over 40-year veteran of basically
9 promoting solar energy. And in my professional
10 life, I represent utility-scale solar along with
11 some other technologies.

12 I'm here to support the new
13 solar-and-storage rate. I did serve on the Value of
14 Storage Technical Committee, which was a very open
15 and interesting process.

16 The current rate, as you heard, is -- NEM
17 rate is 13 cents. SMUD's latest utility scale solar
18 is around 3 cents. There's no economic
19 justification for this. The physics of converting
20 sunlight to electricity is the same whether the
21 solar panel was sitting on a roof or out in some
22 disturbed land somewhere.

23 I just want to point out that the NEM rate
24 is not related to the overall drop in solar prices
25 over the past decade. So the NEM rate has gone up

1 while the cost of solar has come down. And,
2 moreover, you've heard, I think, some of the social
3 inequities that are caused by the current rate
4 structure.

5 I'll point out that the .4 cents addition
6 for land use is troubling given the fact that
7 there's no evidence that SMUD is actually purchasing
8 utility-scale solar that has disturbed land and,
9 actually, quite the contrary.

10 That said, the 7.4 cents, while it is
11 above wholesale rate is -- may create a source of
12 local capacity for all ratepayers, including
13 nonparticipants. In other words, all customers may
14 benefit from this capacity.

15 This is very important because California
16 is awash in solar in the middle a spring or summer
17 day, but it's times like these, when the sun goes
18 down, what's called net peak, that is -- can be
19 really problematic and will become more problematic
20 in the future. So having the ability to convert to
21 solar in midday to a usable product that benefits
22 all customers in the net peak is very important.

23 Net Energy Metering was created a long
24 time ago to nurture rooftop solar. It worked, and
25 it's time to move that business model along to the

1 modern world where we've got solar and storage and
2 moving our technologies forward.

3 SMUD is not the guarantor of any specific
4 business model. The world has shifted and moved on,
5 and I think what staff is proposing here is
6 responsive to the concerns that were expressed by
7 the solar industry. You know, SMUD has been doing a
8 great job of providing reliable, affordable
9 electricity to all customers that is designed to
10 lower our carbon footprint.

11 I would encourage you to support the
12 proposal, and I appreciate your service on this
13 board. Thank you.

14 SMUD GENERAL COUNSEL LEWIS: Thank you.

15 Next up, Beth Hassett.

16 (Upcoming speakers' names announced.)

17 PUBLIC MEMBER BETH HASSETT: Hello. I'm
18 Beth Hassett, the CEO of WEAVE, and we've been a
19 proud partner of SMUD's for more than 26 years.

20 And, in fact, we just partnered with SMUD
21 to bring electric chargers and electricity to nine
22 homes that will serve as permanent supportive
23 housing for victims of domestic violence and their
24 families. These are not families that have the
25 luxury of opting to put solar on their roofs.

1 They're people who are going to be living in these
2 homes on vouchers and -- housing vouchers, and they
3 are just trying to meet their basic needs. And one
4 of those basic needs is electricity that they'll be
5 paying for themselves proudly. And it's important
6 that it's -- it's a basic necessity that they can
7 get and affordably.

8 We at WEAVE wish to express our strong
9 support for SMUD's ongoing efforts to keep energy
10 affordable for people of all demographics. All of
11 the communities we serve deserve to have access to
12 power that they can afford within their income
13 brackets, and that means many of Sacramento's most
14 underserved and most vulnerable households.

15 And to keep our low-income neighbors
16 safely housed and able to afford life's basics, it's
17 important that the cost of electric service be
18 shared equitably throughout the community.

19 So we at WEAVE are proud to support
20 staff's recommendation. Thank you.

21 SMUD GENERAL COUNSEL LEWIS: Thank you.

22 Next up, Nancy Rader.

23 (Upcoming speakers' names announced.)

24 PUBLIC MEMBER NANCY RADER: Good evening.

25 My name is Nancy Rader. I'm the executive director

1 of the California Wind Energy Association.

2 CWEA is supportive of staff's thoughtful
3 proposal both to reform rooftop solar rates and to
4 encourage customers to adopt storage paired with
5 solar to promote system liability. Thought the
6 presentation tonight was very informative and very
7 compelling.

8 If we're going to green our energy system,
9 it's essential that we keep electricity rates as low
10 as possible for everyone to encourage customers to
11 shift away from fossil fuels toward electric
12 vehicles and electric heating and appliances.

13 The cost of installing rooftop solar has
14 fallen by two-thirds over the last 20 or 30 years
15 while the rates paid for rooftop solar has inched
16 up. So it's entirely reasonable to lower the
17 overpayment and foster greater competition in an
18 industry that is by now very well-established.

19 I can tell you that competition is fierce
20 in the wholesale market for utility-scale wind,
21 solar, and storage, the power prices in the range of
22 3 to 5 cents per kilowatt hour. So the much higher
23 proposed rate above 7 cents for rooftop solar, plus
24 the storage incentives, seem more than generous to
25 us. And, in fact, the proposal only reduces the

1 cost shift from solar customers to non-solar
2 customers. It does not eliminate the cost shift.
3 So customers without solar will continue to
4 subsidize generally more affluent solar customers.

5 In fact, staff noted tonight that the
6 remaining cost shift under its proposal just to
7 transition existing NEM numbers is still
8 \$91 million. The board might want to inquire of
9 staff what the remaining cost shift will be for new
10 customers under its proposal.

11 As staff noted, NRDC and energy expert
12 Professor Severin Borenstein commented that staff's
13 proposal is still too generous to the solar industry
14 and solar customers. If anything, alternate
15 proposals should further trim the cost shift. Thank
16 you.

17 SMUD GENERAL COUNSEL LEWIS: Thank you.

18 Next up, Patrick Bean.

19 (Upcoming speakers' names announced.)

20 PUBLIC MEMBER PATRICK BEAN: Thank you.

21 Good evening, President Bui-Thompson, members of the
22 board, and SMUD staff. I'm Patrick Bean, the global
23 charging and energy policy lead at Tesla, and I'm
24 here speaking on behalf of Tesla.

25 Tesla's mission is to accelerate the

1 world's transition to sustainable energy through the
2 manufacture and sale of electric vehicles, rooftop
3 solar PV systems, and battery energy storage.

4 I'd like to begin by thanking SMUD's staff
5 for their hard work for this proposal over a long
6 two-year process and their willingness to take
7 feedback and corrective thinking to develop an
8 innovative proposal.

9 The new proposal -- the new rate proposal
10 is a forward-looking approach that challenges DER
11 providers, like Tesla, to advance the functionality
12 of behind-the-meter resources in order to increase
13 customers' contributions to grid reliability and
14 SMUD's climate goals.

15 In particular, we appreciate the inclusion
16 of storage rebates, Critical Peak Pricing with the
17 ability to export at full retail during Critical
18 Peak events, and the development of Virtual Power
19 Plant aggregations. These features will work to
20 help accelerate the development of distributed
21 energy storage to meet the critical evening peak
22 hours and to help SMUD retire natural gas-powered
23 plants.

24 We're also glad to see the proposal does
25 not include a fixed charge for solar storage

1 customers, which would have harmed the economics of
2 self-generation without reducing greenhouse gas
3 emissions or helping SMUD reach its climate goals.

4 In closing, we'd like to thank SMUD's
5 staff and the board for the opportunity to provide
6 feedback on this process. Thank you.

7 SMUD GENERAL COUNSEL LEWIS: Thank you.

8 Next up, we have Bryan Dove.

9 (Upcoming speakers' names announced.)

10 PUBLIC MEMBER BRYAN DOVE: Hello. This is
11 Bryan Dove. I'm the director of the asset
12 management with Mutual Housing California. And
13 we've been -- SMUD has been an amazing partner over
14 the years as we've been developing and operating
15 affordable housing throughout the Sacramento region
16 through the Shine Program, the Sustainable
17 Communities Program -- (inaudible) design services,
18 electric vehicle charging, infrastructure. We were
19 also one of the first early adopters of solar.
20 About 20 years ago, we installed solar panels in a
21 multi-family property that benefitted the
22 residents -- the tenants of that community.

23 So the low-income households living in our
24 communities and other disadvantaged communities
25 often don't get the benefits of low carbon and the

1 solar initiatives. So we strongly support the 2030
2 Zero Carbon Plan, the Virtual Net Metering option
3 for affordable housing, along with the SolarShares
4 Program and the solar-and-storage rate and incentive
5 programs. All of these programs will help the
6 low-income households living in our community as
7 well as throughout the Sacramento region.

8 With regard to the rate increases, it's
9 always a concern for low-income families, but we
10 understand the need to increase the rates. Most of
11 our other expenses operating our apartment
12 communities are increasing at a higher rate than
13 inflation, our insurance rates, other utilities,
14 vendors and so on.

15 So we're grateful that the rate proposal
16 is less than the inflation rate. And thank you.

17 SMUD GENERAL COUNSEL LEWIS: Thank you.

18 Next up is Azizza Davis Goines.

19 (Upcoming speakers' names announced.)

20 PUBLIC MEMBER AZIZZA DAVIS GOINES: Thank
21 you so much for this opportunity. My name is
22 Azizza Davis Goines, and I am the president and CEO
23 for the Sacramento Black Chamber of Commerce and the
24 executive director for the Sacramento Black Chamber
25 of Commerce Foundation.

1 And I want to begin by thanking you for
2 this opportunity to speak before you this evening on
3 subjects that are affecting not only our minority
4 business owners but our community of color at large,
5 who, by the way, no matter the label, are no longer
6 minority communities.

7 It was just about a year ago that I first
8 addressed you all with the concerns that I felt
9 needed to be heard and addressed. I remember it
10 clearly because I left Sacramento to work in an area
11 of California that was not completely covered in
12 raging fire, smoke, ash, and evacuations that became
13 so prominent in every decision-making process we
14 were making at that time. As much as has changed,
15 there is still a lot that remains the same.

16 Briefly, for those that did not hear me
17 last year, I want you to know that my soapbox
18 remains pretty much the same, is that we need to
19 find alignment with education and equity in every
20 part of the energy footprint.

21 We still need answers. Where in the line
22 of priorities does equity kick in and planning and
23 implementation of those constructs begin to become
24 more than just afterthoughts?

25 I've heard the good talk and agreement

1 that the good work needs to happen. But where is
2 the process, and how do we take your words back to
3 our small businesses and overall affected
4 communities and say: This is how we do it?

5 The plans that SMUD has and are almost
6 destined to be implemented are here and will be
7 discussed this evening, and have been discussed this
8 evening, at length. But many still have not been
9 shared with our business communities or our
10 communities at large in a way that feels inclusive,
11 in ways that will almost feel that there are plans
12 in place that address the majority minority's needs
13 being taken into full consideration before they're
14 implemented.

15 I still have little concrete information
16 that I can take back to our apartment renters on how
17 this 2030 plan will benefit them and, even more,
18 what is the 2030 plan? There was an event not long
19 ago that was supposed to tout what the community was
20 doing for us, and none of "us" were there at the
21 event.

22 We still have work to do, but please know
23 that Sacramento Black Chamber of Commerce is with
24 SMUD, and we want to be with the solar industry as
25 we move forward in making these plans effective and

1 workable for all of our communities. Let's be more
2 inclusive. It's still a really important thing for
3 it to happen in our communities. Thanks for your
4 time.

5 SMUD GENERAL COUNSEL LEWIS: Thank you.

6 Next up, Luis Sanchez.

7 (Upcoming speakers' names announced.)

8 PUBLIC MEMBER LUIS SANCHEZ: Yes, thank
9 you. Good evening. I'm Luis Sanchez. I'm the CEO
10 of Community Resource Project, known as CRP. We're
11 a local nonprofit administering the light HEAP
12 program and doing weatherization with energy
13 efficiency measures to low-income communities.

14 We've been a strong partner with SMUD over
15 many years providing utility payment assistance to
16 eligible SMUD customers, and we wish to express our
17 strong support for SMUD's ongoing efforts to keep
18 energy affordable for all income levels in our
19 communities, especially our residents in underserved
20 communities.

21 On your rate proposal increase, we
22 understand the need to meet rising costs that are
23 affecting everyone. And we caution SMUD to be
24 mindful of our low-income households whose incomes
25 do not always keep pace with pricing costs of living

1 and what an impact of 1.5 percent to 2 percent
2 increase would have on them.

3 We have SMUD clients with bills ranging
4 from \$200 to \$3,000 currently, the average bill
5 being about \$486, and these individuals struggle to
6 make their utility payments. We see SMUD clients
7 having to choose between not paying their utility
8 bill, instead choosing to purchase food or necessary
9 medicine. Choosing not to run their air conditioner
10 because of higher energy cost or not running their
11 heater in the winter for the same reasons are real
12 choices that they are faced with.

13 Regarding the Critical Peak Pricing rate,
14 again, SMUD should keep in mind our communities with
15 most vulnerable individuals who are dependent on
16 their medical devices to keep them safe and alive.
17 If they cannot avail themselves of the benefits the
18 CPP rate would provide, SMUD should consider other
19 options for these customers.

20 We applaud SMUD for their Virtual Net
21 Metering efforts to assist affordable housing
22 developments to adopt solar. And considering the
23 current affordable housing storage, there are other
24 low-income families who reside in multi-family units
25 not designated as affordable, and they should be

1 allowed to benefit from the VNEM as well. We look
2 forward to continuing discussion around this
3 initiative.

4 Ultimately, we encourage SMUD to keep our
5 low-income residents safely housed and able to
6 afford their most basic necessities so that it is
7 important that the cost of electric service be
8 shared throughout your communities.

9 I want to thank you tonight for this
10 opportunity to address you. Thank you.

11 SMUD GENERAL COUNSEL LEWIS: Thank you.

12 Next up is Faith Galati.

13 (Upcoming speakers' names announced.)

14 SMUD STAFF JOSUE SWAY GARCIA: Faith, your
15 microphone has been activated.

16 PUBLIC MEMBER FAITH GALATI: All right.
17 Thank you very much. President Bui-Thompson,
18 members of the board and staff, hello. My name is
19 Faith Galati, and I'm executive director of
20 Breakthrough Sacramento.

21 Breakthrough is a year-round tuition-free
22 college preparatory program that leads motivated
23 under-resourced youth on a path to success and
24 college. We're also a pre-professional training
25 program for diverse students who aspire to become

1 educators.

2 In the education field, I feel compelled
3 to share with our youth that prior to the
4 19th Century, environment concerns were not a matter
5 of individual concern, rather they elected the
6 government to sort out and dictate actions.
7 Fortunately, special-interest groups evolved to
8 change government policies and promote
9 environmentally friendly social values.

10 You know, I want to share that I remember
11 in the 1960s -- okay, late 1960s -- the media
12 campaigns such as "Give a hoot, don't pollute;" and,
13 sadly, Smokey Bear says, "Only you can prevent
14 forest fires." I'm sure that makes a few of you
15 smirk as we wheeze on smoke today.

16 It was simple when I was younger, but
17 today our youth grapple with what climate change
18 means to their future. And I'm really pleased to
19 share how SMUD takes part in helping us educate our
20 youth about how they can affect their future.

21 Breakthrough, with SMUD, has been working
22 together for five years, and SMUD has been a
23 critical partner for us in bringing energy and
24 sustainability education to some of our most
25 underserved students. Each summer our students

1 participate in hands-on STEM experiments surrounding
2 solar energy. They build solar-powered battery
3 chargers, water pumps, fans, even mini-solar cars.
4 They're challenged to find ways to apply what
5 they've learn to their everyday life. And this past
6 summer, the SMUD curriculum expanded to include wind
7 power. Today, our students can share tips and
8 techniques to reduce energy use and their family's
9 energy bills. That's true community sharing and
10 empowerment.

11 Breakthrough is appreciative of SMUD's
12 ongoing efforts to keep energy affordable for all
13 income demographics of our community, particularly
14 the commitment to keep energy affordable for
15 Sacramento's most underserved households.

16 Any increases in the rates are always a
17 concern for Sacramento's low-income; however, we
18 understand that the reasoning -- we understand the
19 reasoning and are pleased that SMUD is keeping them
20 below the rate of inflation. To keep our low-income
21 neighbors safely housed and able to afford life's
22 most basic necessities, it is important that the
23 cost of electric service be shared throughout your
24 community.

25 I'm inspired by and I really respect

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1 SMUD's commitment to achieve a zero emissions by
2 2030 and believe that it will take a whole community
3 to get there.

4 Thank you very much for this opportunity
5 to speak on behalf of our under-resourced youth in
6 Sacramento.

7 SMUD GENERAL COUNSEL LEWIS: Thank you.

8 Next up is Pastor Mark Meeks.

9 (Upcoming speakers' names announced.)

10 PUBLIC MEMBER PASTOR MARK MEEKS: Hi. My
11 name is Mark Meeks. I am privileged to serve as
12 pastor of City Church of Sacramento, and we are
13 located in the Oak Park community on the corner of
14 4th Avenue and 39th Street. In addition to serving
15 as pastor, I am a civil engineer only semiretired
16 with over 30 years with the State of California and
17 seven with Kaiser Hospitals right here in design and
18 construction. And I only mention that to highlight
19 my familiarity with and support of approaches to
20 problems as well as opportunities that are both
21 considered and thoughtful.

22 And while this type of approach may not
23 satisfy everybody at every turn, more often than not
24 it is the best chance for having the best solution
25 long-term. So, full disclosure, City Church has

1 been a proud sustainable communities partner with
2 SMUD for the last three years, and SMUD has been an
3 invaluable partner in helping us breathe new life
4 into a building that was abandoned, for all intents
5 and purposes, for over 20 years.

6 I appreciate the support SMUD has provided
7 us to help decrease our energy costs with
8 energy-efficient lighting, HVAC, and solar. And let
9 me just say the dollars that we have saved, will
10 save, on our energy bills are being reinvested back
11 into our Oak Park community.

12 I've shared this in other venues, and I'll
13 share it now. A lot of people talk about saving
14 lives and being catalysts for change in community.
15 Let me just say this, with all honesty: That SMUD
16 and specifically the sustainable-communities
17 programs have saved lives. And I say this because
18 of a modest investment that SMUD was able to provide
19 City Church to install competent lighting which
20 allowed us to partner with UC Davis Health and to
21 host the first, and for, unfortunately, a long
22 period of time, the only COVID vaccination clinic in
23 all of Oak Park, a community of over 50,000 people.

24 What SMUD has is -- and prayerfully will
25 continue to do is create an equitable framework for

1 all social and economic demographic groups for the
2 Oak Parks as well as the Land Parks of our
3 community. Energy affordability and fairness is
4 essential, especially with something as promising
5 and in vogue as solar energy and net metering. How
6 SMUD approaches this and other issues goes beyond
7 simple bottom lines. Dare I say, it must be more
8 than just good business; it must be the right thing
9 to do.

10 Thank you, SMUD. In particular,
11 Jose Bodipo-Memba and Shiloh Costello, I look
12 forward to being an ongoing co-laborer with you in
13 our community. Thank you so much.

14 SMUD GENERAL COUNSEL LEWIS: Thank you.

15 Next up is Darrick Lam.

16 (Upcoming speakers' names announced.)

17 PUBLIC MEMBER DARRICK LAM: Good evening,
18 everyone. My name is Darrick Lam. I'm the
19 president and CEO at ACC Senior Services.

20 ACC Senior Services has been a proud
21 partner with SMUD for the past 49 years. Since our
22 incorporation in April of 1972, ACC has been
23 providing health, social, and supportive services in
24 Sacramento in the space of senior living such as
25 skilled nursing, assisted living, memory care,

1 independent living, transportation, lifelong
2 learning and wellness programs, senior employment
3 training, family caregiver support, senior safety
4 collaborative, and also we manage the Meals on
5 Wheels by ACC.

6 ACC would like to express our strong
7 support for SMUD's ongoing effort to keep energy
8 affordable for all income demographics of our
9 community, particularly their commitment to keep
10 energy affordable for Sacramento's most underserved
11 households.

12 Having served tens of thousands of seniors
13 in the past 49 years, ACC Senior Services sense that
14 any increases in their rates are always a concern
15 for Sacramento's low-income. However, we understand
16 the reasoning, which include wildfire mitigation and
17 related vegetative management, repairs to aging
18 infrastructure, increased operating costs, and also
19 compliance with state regulations. We are also
20 pleased that you are keeping them below the rate of
21 inflation.

22 And this is very similar to a time when an
23 organization would have to adjust rates for
24 private-pay residents at our skilled nursing,
25 assisted living, and independent living to deal with

1 the ever-increasing operating costs and to ensure
2 that there's enough revenue to pay for competitive
3 wages and provide incentives so that we can continue
4 to retain a high-quality staff in the provision of
5 services for all that dwells within ACC's family of
6 services.

7 On the matter of net metering, we find
8 ourselves concerned for Sacramento's low-income
9 households, many of which are living in situations
10 that do not permit them to readily access the
11 current benefits of solar technology; however, in
12 time, they may be the very group that bears the
13 additional cost of an aging electrical system,
14 especially if no upgrades or repair is being done
15 now.

16 So to keep our low-income neighbors safely
17 housed and able to afford life's most basic
18 necessities, we feel it's pertinent that the cost of
19 electric service be shared throughout our community.

20 In closing, thanks to SMUD staff for
21 putting together this proposal and allowing me to
22 make my comments.

23 SMUD GENERAL COUNSEL LEWIS: Thank you.

24 Next up is Tracy Jackson.

25 (Upcoming speakers' names announced.)

1 PUBLIC MEMBER TRACY JACKSON: Thank you
2 for having me. This is Tracy Jackson. And thank
3 you to President Bui-Thompson, to the board, and to
4 the staff. I appreciate you allowing me to take a
5 few moments.

6 My name is Tracy Jackson. I'm a business
7 owner. I'm a mother and my husband being a teacher
8 having to work from home last year. I have three
9 daughters who are students who also had to work out
10 of home last year, and I could just tell you how
11 much I really appreciate the fact that I knew that
12 SMUD was my utility provider through those
13 situations, and I had a lot of confidence that
14 things were going to work out, and they did. So
15 thank you very much.

16 I've been a SMUD customer since 2000.
17 I've lived in other major districts for utilities,
18 and SMUD, by far, is the one who I actually talk
19 about and really appreciate. I'm also a solar
20 customer. I've been a solar customer now for about
21 ten years. This is my second home that I have solar
22 because I had a great experience with the first one;
23 I'd even say a little better than this one.

24 I really appreciate the educational
25 campaign that SMUD has done, and I've really

1 appreciated the heads-up and the knowledge I get.
2 When I got the letter last year, I remember -- I
3 actually still have the letter that I got talking
4 about this.

5 On a sidenote, I'd like to say one thing I
6 really appreciated is that you were no longer going
7 to use the term "grandfathered," and that you talked
8 about it in that letter. That made actually me
9 really appreciate it.

10 But I'm really happy about the things that
11 are taking place, the communication. I think the
12 increases are negligible, and I appreciate the fact
13 that everyone is really concerned about our
14 lower-income and -- you know, minority
15 underrepresented groups or lower-income groups that,
16 we're taking those things into consideration. So
17 I'm actually in favor of the proposal that you have
18 in place.

19 Of course, I'm a little concerned about
20 what kind of fees are going to be attached when you
21 connect to the grid. But at the same time, I feel
22 like most of them have been incredibly fair and
23 transparent. So I really appreciate it, and I think
24 that's really about it.

25 Of course, I'm also -- my biggest concern

1 now is fire danger, and I don't think that they're
2 hypothetical concerns any longer. I think that
3 these are the real concerns, and the steps that SMUD
4 needs to take to make sure to reduce the possibility
5 of fires in California and in our neighborhoods is
6 really important.

7 So, again, I'd like to express my support
8 for the proposal that you have in place. And that's
9 all I have for today. Thank you.

10 SMUD GENERAL COUNSEL LEWIS: Thank you.

11 Next up we have Michael Lynch.

12 (Upcoming speakers' names announced.)

13 PUBLIC MEMBER MICHAEL LYNCH: Hello. I'm
14 Michael Lynch. Sorry for the background noise. I
15 have two kids in the background playing karate.

16 Thank you so much, Madam President and
17 Board, for allowing me to speak. I serve as the
18 cofounder and chief executive officer of Improve
19 Your Tomorrow. At Improve Your Tomorrow, we help
20 young men of color get to and through college. And
21 SMUD has been a continuous strong partner with IYT
22 since our inception in 2013. And on behalf of IYT,
23 I'd like to express my strong support for SMUD's
24 continued quest to bring energy equity to low-income
25 communities of color, the same communities in which

1 Improve Your Tomorrow serves of over 2,000 young
2 people across Sacramento County.

3 Two years ago through a SMUD community
4 partnership, we launched a STEM camp to help young
5 people get inspired about careers in technology.
6 Over the course of eight weeks through a partnership
7 with SMUD and Sac City, they had the opportunity to
8 build new technological products and pitch those
9 products to an audience in a Shark-Tank-style
10 experience at the close of the session.

11 SMUD was critical to be able to help to
12 execute the camp, both through staff support, fiscal
13 support, but really through bringing the
14 technological expertise that our young people needed
15 to get excited about a possible career in STEM.

16 Through our current sustainable-
17 communities partnership, SMUD is helping to close
18 the mentoring gap, include, like, South Sacramento,
19 by helping to fund a cohort of mentors who are
20 working and serving in the community. COVID has
21 only widened gross academic inequality across the
22 county. And SMUD, recognizing the importance of a
23 strong labor workforce that needs to be educated,
24 has continuously invested in helping to make sure
25 that more young people have access and opportunity

1 to a better life.

2 I'll close with a brief story on SMUD's
3 impactful partnership. We have a young person who
4 started in the program with us at IYT when he was a
5 sophomore in high school. He had a 1.67 GPA. A
6 couple of semesters later he was in mid 2s and got
7 accepted to Sacramento State. Through his five
8 years at Sacramento, he worked as a mentor, mentor
9 fellow in South Sacramento, right back in the same
10 community, in which he served helping to make sure
11 other young men of color get to and through college.
12 That young person recently graduated from Sac State
13 and is involved in the professional world. And his
14 experience was helped to be powered by SMUD and
15 SMUD's continued partnership in the community to
16 ensure that there's equal access to a better life.

17 Thank you so much for your time.

18 SMUD GENERAL COUNSEL LEWIS: Thank you so
19 much.

20 Next up, Jeff Owen.

21 (Upcoming speakers' names announced.)

22 PUBLIC MEMBER JEFF OWEN: Good evening,
23 Members of the board. My name is Jeff Owen, and I'm
24 the executive director of City Year of Sacramento.
25 City Year is an AmeriCorps program focused on

1 educational equity. We know that talent among
2 students is equally distributed but opportunities
3 are not.

4 SMUD and City Year have been partners in
5 supporting some of our region's most vulnerable
6 communities using the Social, Emotional, and
7 Academic Development framework to support and enrich
8 students' experience in the classroom every day.
9 This includes the use of SMUD's STEM curriculum to
10 excite our students with lessons they otherwise
11 might not have exposure or access to.

12 In our experience, SMUD has been an --
13 authentic in their inclusive and equity-based
14 decision-making and care deeply about being strong
15 community partners. We actively utilize SMUD's
16 sustainable-communities map both in our strategic
17 planning and in bringing awareness to the inequality
18 of resources in our region. This resource has been
19 a great addition to our training of the Americorps
20 members and their understanding of the communities
21 they will be working with throughout their year of
22 service.

23 City Year staff and Corps members were
24 witnessing first-hand the disproportionate effect on
25 vulnerable communities with issues like climate

1 change. And I'm calling tonight to applaud SMUD and
2 the leadership of the board in your efforts to get
3 to zero carbon.

4 While I'm not an expert on solar or
5 electric services, I do know that with great change
6 comes the need for great compromise. For example,
7 we work in low-income communities. Many of the
8 households are in living situations that do not
9 allow them to take advantage of the current benefits
10 of solar technology. At the same time, they may be
11 the very group that bears the additional cost of
12 improving electrical systems. We can no longer look
13 to our communities who receive less in community
14 investment to give more.

15 I support SMUD in their effort and have
16 seen firsthand their intentional approach to their
17 work to understand and support our entire region but
18 particular areas that have been traditionally
19 overlooked.

20 In reading the plan, Virtual Net Metering
21 appears to benefit the households in the communities
22 and cities they serve regardless of whether they
23 have solar or not, in particular by keeping energy
24 costs low. Getting to zero carbon by 2030 is
25 ambitious, but it's also world-changing and should

1 be recognized. The healthier the environment, the
2 healthier our kids will be and the more time they'll
3 spend at school.

4 But, please, also continue to focus on
5 equity in providing inclusive opportunities for our
6 lower-income neighbors to take advantage of clean,
7 affordable, and sustainable energy options.

8 Thank you for your time and looking out
9 for the best interest of our entire community.

10 SMUD GENERAL COUNSEL LEWIS: Thank you.

11 Next up, Jeff Spies.

12 (Upcoming speakers' names announced.)

13 PUBLIC MEMBER JEFF SPIES: Yes. Hello.
14 Can you hear me?

15 SMUD GENERAL COUNSEL LEWIS: Yes.

16 PUBLIC MEMBER JEFF SPIES: Hi, Laura. I
17 appreciate you pronouncing my last name correctly.
18 You must know somebody from my family. My name is
19 Jeff Spies, pronounced Spies (pronunciation) by
20 most, and I'm president of a solar drafting company
21 serving installers throughout California, including
22 SMUD territory.

23 I care about low-income communities in
24 fairness, but I'm also committed to the critical
25 necessity of a healthy solar industry, and I stand

1 in firm opposition to the proposal put forth by SMUD
2 staff.

3 My reason for speaking today is ten years
4 ago, I was contracted by APS, Arizona Public
5 Service, the largest electric utility in Arizona
6 with rates not dissimilar to SMUD, to develop a
7 contractor-training program teaching realistic
8 financial payback calculation for residential PV
9 systems. This was for the APS-qualified solar
10 installer training program. And I was chosen to
11 teach this topic as I had a reputation for being a
12 strong proponent of ethical financial projections by
13 solar contractors.

14 Having taught the subject for APS for
15 several years and understanding the financial
16 underpinnings of payback and the effect on solar
17 adoption, I'm certain SMUD's staff proposal will not
18 allow for growth for the solar-and-storage industry
19 as presented by staff; in fact, it will contract the
20 industry, and here is the four reasons why:

21 You're going to have high interconnection
22 fees, three times higher than PG&E, which will
23 disincentivize residential customers from investing
24 in a solar installation.

25 And the incredibly modest battery

1 incentive is really not an incentive. It provides
2 only an average over the years it's active of \$850
3 total incentive, which would result in an energy
4 storage system payback for about 14 years when
5 battery life is probably going to be 10 to 12 years.
6 You would never get payback on the battery.

7 The ridiculously low limit on the solar
8 system size will make adding an EV, an electric
9 vehicle, difficult because an EV will normally
10 double the electric consumption of a typical home.
11 And by only allowing 110 percent of last year's
12 production for a solar system, prevents somebody
13 from putting EV on where they can essentially fuel
14 it with the solar system.

15 And the fourth reason, the most impactful
16 one, is the dramatically reduced then compensation
17 for back-fed kilowatt hours extends the payback
18 noticeably.

19 The conclusion is that this proposal will
20 lead to a decline in solar and storage during the
21 time when additional distributed generation is so
22 important for energy resiliency and our climate
23 goals. Thank you very much for allowing me to
24 speak.

25 SMUD GENERAL COUNSEL LEWIS: Thank you.

1 Next up, Evan Schmidt.

2 (Upcoming speakers' names announced.)

3 SMUD STAFF JOSUE SWAY GARCIA: And, Evan,
4 your microphone has been activated if you can unmute
5 when you're ready.

6 PUBLIC MEMBER EVAN SCHMIDT: Good evening,
7 President Bui-Thompson, Members of the board and
8 SMUD staff. Thank you the time this evening. My
9 name is Evan Schmidt, and I am the CEO of Valley
10 Vision, a nonprofit and civic leadership
11 organization operating in the Sacramento region for
12 over 25 years.

13 Valley Vision drives actionable research,
14 collaboration, and catalytic action to advance
15 economic prosperity, environmental sustainability,
16 and social equity in communities across the region.
17 We've also been actively partnering with SMUD for
18 many years to support these goals and have greatly
19 appreciated SMUD's partnership with Valley Vision
20 and their leadership in the region.

21 I'm calling to support SMUD's proposed
22 rate increase. I highly commend the board and staff
23 on SMUD's ambitious 2030 Zero Carbon vision. This
24 vision aligns strongly with Valley Vision's
25 commitment to livable and sustainable communities,

1 reduced emissions, improve our local air quality,
2 overall health, and create jobs.

3 Further the plan provides important action
4 that addresses climate change and helps put us on
5 the road to a low-carbon economy. I believe that
6 the modest rate change will support the goals of the
7 2030 plan without creating an undue burden on
8 customers.

9 We are all faced with new challenges right
10 now including the increased risk of wildfire and the
11 transition to a low-carbon economy, which includes
12 integration of new clean technologies. SMUD has
13 come out as a leader in clean and affordable energy,
14 and it's important that their rates keep up with
15 inflation in order to address these changes.

16 It's also important that we take action in
17 ways that consider and address the underserved in
18 our communities. Rate increases can cause concern
19 about the ability of the under-resourced households
20 in communities to afford basic needs.

21 SMUD has a long history of creating
22 safeguards to avoid undue impacts by these
23 customers, and, in fact, I believe the rate change
24 will address some existing inequities in the
25 application of clean energy subsidies.

1 Additionally, with the rate change keeping
2 below the rate of inflation and the relatively low
3 cost of SMUD's overall rates, I believe that the
4 rate increase is warranted and reasonable.

5 I appreciate SMUD's leadership in the
6 Sacramento community supporting clean energy,
7 sustainable communities, as well as a diverse array
8 of community initiatives, many community-based
9 organizations, and social equity goals throughout
10 their service area.

11 Valley Vision is closely aligned with and
12 supportive of SMUD's ambitious emission-reduction
13 goals and their actions to achieve those goals. For
14 these reasons I support SMUD's rate increase
15 proposal. Thank you for your time and consideration
16 this evening.

17 SMUD GENERAL COUNSEL LEWIS: Thank you.

18 Next up is Ed Murray.

19 (Upcoming speakers' names announced.)

20 PUBLIC MEMBER ED MURRAY: Thank you, Madam
21 President Bui, SMUD board and SMUD staff. I really
22 want to thank you for having public comment before
23 my bedtime as opposed to the last meeting we had.

24 My name is Ed Murray. I'm the president
25 of Aztec Solar in Rancho Cordova. I'm also the

1 president of the California Solar & Storage
2 Association, or CALSSA, which represents 600
3 members: Solar companies, distributors, and
4 manufacturers. Aztec Solar installs solar electric,
5 water and pool heating.

6 I am disappointed that you are portraying
7 Aztec Solar on your slide as a collaborator in this
8 process. I want to go on record that Aztec Solar
9 does not agree with this proposal.

10 I have been a proponent of SMUD for many
11 years. When I have presented in Europe and Asia
12 regarding solar systems in the United States, I
13 proudly spoke with SMUD but now find myself at a
14 loss for words regarding SMUD. Once a
15 forward-thinking utility under David Freeman's
16 leadership, SMUD is now looked at as a utility which
17 is choosing one technology over others,
18 utility-scale versus rooftop solar.

19 I am shocked that the SMUD Board and
20 employees does not see that Rome is burning. Please
21 look outside your windows and see that the forest
22 fires are indicative of accelerated climate change.

23 Please, please, reconsider the proposal
24 before you. We are going to need all hands on deck
25 to mitigate climate change, including residential

1 and commercial solar. Thank you.

2 SMUD GENERAL COUNSEL LEWIS: Thank you.

3 Next up, Megan Nutting.

4 (Upcoming speakers' names announced.)

5 SMUD STAFF JOSUE SWAY GARCIA: Thank you.

6 And, Laura, we do not have Megan Nutting in
7 attendance, along with Steve Berlin.

8 So I will be activating Michael Zaro's
9 microphone at this time.

10 SMUD GENERAL COUNSEL LEWIS: Okay.

11 (Upcoming speakers' names announced.)

12 SMUD STAFF JOSUE SWAY GARCIA: And,
13 Michael Zaro, your microphone has been activated,
14 just unmute when you are ready.

15 PUBLIC MEMBER MICHAEL ZARO: I'm a sales
16 rep for a sun power dealer.

17 In having sold mostly in PG&E territory
18 but also some in SMUD, I can tell you right now that
19 any impediment to selling in SMUD is really going to
20 push a lot of business out of your region. I've
21 seen that, despite what was presented earlier, with
22 regard to some of the other utilities that have done
23 away with or reduced their net metering like, for
24 example, Roseville.

25 It is extremely difficult to get customers

1 motivated to make an investment in some of these
2 communities. So I can say with certainty that this
3 will absolutely drive customers away from solar and
4 SMUD. That's all I have. Thank you.

5 SMUD GENERAL COUNSEL LEWIS: Thank you.

6 Next up, Al Rich.

7 (Upcoming speakers' names announced.)

8 PUBLIC MEMBER AL RICH: Good evening,
9 President Bui-Thompson, SMUD board members and
10 staff. My name is Al Rich, president of ACR Solar
11 International in Carmichael.

12 I participated in NEM 2.0 collaborative
13 meetings late last year and early this year. I was
14 honored to participate with a very thoughtful SMUD
15 staff and feel a good deal of understanding was
16 reached particularly as to how marginal the SMUD
17 solar market sales process is and the need to do no
18 harm to the solar -- local solar industry.

19 Currently, even with SMUD's lower kilowatt
20 prices, most low-income homeowners can finance a
21 solar system and have a positive cash flow. That
22 will change when NEM 2.0's 7.4 cent export rate is
23 implemented.

24 While I disagree that 7.4 cents is a true
25 value of solar, it was discussed how important the

1 glide path is to the 7.4 sent export rates until the
2 solar industry can adjust to the increased
3 solar-only return on investment and expedite a
4 robust battery program in cooperation with SMUD
5 staff. This is important to meet SMUD's significant
6 and greatly appreciated 2030 Climate Emergency
7 Resolution that the board and SMUD staff have worked
8 so hard on.

9 As the Prop. 26 issue entered the
10 collaborative room, a compromise was discussed and,
11 I thought, reached to have NEM 2.0 start date be
12 January 1, 2023. I was disappointed to find the
13 plan to start had moved to January 1, 2022. This
14 early NEM 2.0 start date is too soon for the solar
15 industry to adjust to.

16 We hope that by January 1, 2023, the
17 current battery supply shortage will be over and
18 battery prices will be lower. We actually need
19 until January 1, 2023, to adjust to the new
20 marketing conditions and working with SMUD staff,
21 home to solar industry's battery sales presentations
22 to the customers.

23 Thank you for being the progressive
24 municipality utility you are and the opportunity to
25 speak with you.

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1 SMUD GENERAL COUNSEL LEWIS: Thank you.

2 Next up, Fatima Malik.

3 (Upcoming speakers' names announced.)

4 PUBLIC MEMBER FATIMA MALIK: Hi. Can you
5 hear me?

6 SMUD GENERAL COUNSEL LEWIS: Yes.

7 PUBLIC MEMBER FATIMA MALIK: All right.
8 So I actually had called in to talk about something
9 totally different, but I really need to talk about
10 everybody that you just had speak as members of the
11 public comment. It really sounded like you just
12 went through your entire grantee list of everyone
13 that has a conflict of interest with SMUD.
14 Specifically, I want to call out Valley Vision.
15 That was a huge conflict of interest because Paul
16 Lau is on their board.

17 So I really think that I'm super
18 disappointed in how this became a discussion about
19 all of the partnerships you have and your grantees,
20 and you're mixing the issue of solar with all of
21 these other issues around serving low-income
22 minority communities. You know, there are so many
23 issues, but you're, like, commingling, combining.

24 There is so much conflict of interest
25 today and tonight that I'm super, super disappointed

1 that I can't even talk about what I came to talk
2 about because I really got to call out how you all
3 just stacked all of the supporters, and they sounded
4 like they had all the same script, and I'm just
5 super concerned because the real issue is I think --
6 I want to take you back to --

7 I was actually going to talk to about how
8 in 2019 there was a presentation done to the SMUD
9 NEM working group December 12th, 2019, by
10 Elena Seger (phonetic) by a group called PSE Healthy
11 Energy.

12 And I think the main thing that I want to
13 talk about is that the reason why equity and access
14 to solar and storage is so important is because we
15 want to reduce the energy burden of people with
16 low-income who spend more of their income on utility
17 bills, right? They have less disposable income.

18 The ultimate reason why people get solar
19 is so they have more consistent bills. And so I
20 want to talk about why I got solar plus so that I
21 could be able to have a more consistent bill. And
22 that is -- I think what I did not hear anybody talk
23 about is, like, yes, obviously low-income
24 communities are spending way too much money on their
25 utility bills. And these one-time payments or --

1 you know yes, I appreciate everything that SMUD does
2 with energy assistance programs, but you really need
3 to make this completely separate issues and
4 arguments.

5 The other thing is that if SMUD really
6 wants to address equity, let me be clear, what you
7 just laid out tonight is: Hashtag "Not Real
8 Equity," okay? Because you've got to go back to the
9 drawing board. 24 value components do not equal
10 equity criteria, okay?

11 And I don't see what the win-win here is
12 because the reality -- I do agree with you is that
13 the early adopters of solar have been the wealthy.
14 And I'm going to ask SMUD to really think about --
15 stop opportunity porting and figure out how to make
16 this technology available to more people and not
17 less. Thank you.

18 SMUD GENERAL COUNSEL LEWIS: Thank you.

19 Next up, Lola Pudinski.

20 (Upcoming speakers' names announced.)

21 PUBLIC MEMBER LOLA PUDINSKI: Hello?

22 SMUD GENERAL COUNSEL LEWIS: Yes, we can
23 hear you.

24 PUBLIC MEMBER LOLA PUDINSKI: Good evening
25 and thank you.

1 Our state is on fire, and we need to do
2 everything we can to combat climate change and reduce
3 our use of fossil fuels. There are issues with the
4 study SMUD is using to justify this proposal and,
5 therefore, their new NEM rate.

6 Most importantly, SMUD's solar study
7 incorrectly claimed that SMUD pays solar users for
8 simply using their own solar energy at home. This
9 is incorrect.

10 The study is also contradicted by mounting
11 evidence and an analysis by the national grid
12 modeling experts, Vibrant Clean Energy, which shows
13 that rooftop solar reduces the cost of the
14 electricity grid, can cut Californian's energy bills
15 by 120 billion over the next 30 years, and reduce
16 global warming pollution by about 4 million metric
17 tons.

18 Additionally, residential solar battery
19 costs approximately \$8,500. That's for the Tesla
20 Powerwall. The incentive is an average of \$850,
21 which is nowhere close to making up for the gutted
22 solar credit to make it economical to purchase a
23 battery in addition to the cost of solar panel.
24 This would make investing in rooftop solar
25 uneconomical for the average working- and

1 middle-class family. And it would make it
2 impossible for low-income families to have solar,
3 which they should have access to to help with their
4 bills. Thank you.

5 SMUD GENERAL COUNSEL LEWIS: Thank you.

6 Next up is Marie Chen.

7 (Upcoming speakers' names announced.)

8 SMUD STAFF JOSUE SWAY GARCIA: Thank you.

9 And, Laura, Marie Chen nor John Lindwall
10 appeared. So next would be Johan van Ravenhorst.

11 SMUD GENERAL COUNSEL LEWIS: Thank you.

12 PUBLIC MEMBER JOHAN VAN RAVENHORST: All
13 right. Can you hear me?

14 SMUD GENERAL COUNSEL LEWIS: Yes.

15 PUBLIC MEMBER JOHAN VAN RAVENHORST: My
16 name is a Johan van Ravenhorst. I recently
17 emigrated from the Netherlands in Western Europe to
18 the United States, and now I am a SMUD residential
19 customer.

20 So the lower rates make it harder for me
21 as a homeowner, who would like to get solar in the
22 near future, and a small landlord. We are currently
23 in the process of possibly installing solar into
24 houses to invest in solars for my tenants,
25 single-family homes. So I kindly request you to

1 keep the current rates. You know, for our case, a
2 lower net metering rate would be -- would make solar
3 investment financially very unattractive.

4 As one of the arguments, you said that
5 currently the solar industry seems mature or is
6 mature. Well, you know, I'm from the Netherlands,
7 so I compare prices, and they are typically double
8 here compared to in Western Europe while, you know,
9 (inaudible) is the same price and wholesale prices,
10 permitting and electrician hourly rates are roughly
11 the same.

12 So here in California, a lot of money goes
13 either to, you know, overhead or profit, and I am
14 not willing to pay for either of them. So it more
15 looks like the solar industry has childish greed
16 instead of being mature, or they are just abysmally
17 inefficient.

18 Another example, I bought a Tesla solar
19 roof in October and for 34,000. In April, their
20 price post signing contract -- contract breach, was
21 increased to 58,000.

22 And let's talk about roofs in the United
23 States. When you buy roofs -- shingles, I mean, the
24 moment you walk out of Home Depot it starts to
25 crumble in your hands. In Western Europe, you have

1 tile roofs that last for 300 years. Here in the
2 United States, you replace them every 30 years. I
3 think that is ridiculous.

4 So, you know, Tesla sold a roof, or
5 something like that, made of tempered glass like the
6 side windows of your car, you know, that will last
7 100 years if all goes well. But given the prices
8 that I just quoted you, also that is certainly not a
9 mature industry. Of course, not all goals of a
10 solar roof can be attributed to the solar-generating
11 portion of that, and it's a far more complicated
12 story than this but just to, you know, give some
13 attention to that point.

14 Another point, 3 cents per kilowatt hour
15 for industry-scale -- (inaudible) solar, wow. Yes,
16 but what fraction of the annual energy consumption
17 of SMUD can be covered with the current fields that
18 operate at such a low cost? Is it scaleable to
19 offer a much larger fraction of the annual demands
20 of SMUD customers?

21 It has advantages to have generation and
22 storage closer to the loads. It saves a lot of
23 copper in the ground. That should be mentioned as
24 well. Thank you.

25 SMUD GENERAL COUNSEL LEWIS: Thank you.

1 Next up is Debbra Jacobs-Robinson.

2 (Upcoming speakers' names announced.)

3 SMUD STAFF JOSUE SWAY GARCIA: Debbra is
4 not in attendance, so I have activated the
5 microphone for Patrick Sterns.

6 PUBLIC MEMBER PATRICK STERNS: Hello,
7 President Bui-Thompson and members of the SMUD Board
8 of Directors and staff. Thank you for having me.
9 My name is Patrick Sterns with Sunpower Corporation.

10 We are a 35-year-old leading solar energy
11 and storage solutions provider. We have about 1400
12 residential projects and 60 large commercial
13 projects within the SMUD territory. We work with 17
14 of the 20 top homebuilders in this state, many of
15 which who are very active in SMUD territory. And of
16 the 370 local contractors we work with, 25 of them
17 are in SMUD. And as of last count, they have,
18 combined, more than 900 employees in your territory.
19 So we represent a big slice of the solar industry
20 there.

21 I'd like to thank the board for your
22 commitment to providing reliable and affordable
23 energy to your customers and helping to lead the way
24 as we transition to a clean energy economy.

25 However, in order to achieve this goal, we

1 feel strongly that the board needs to reevaluate the
2 current net metering proposal and examine the
3 impacts it would have on SMUD's vision of a zero
4 carbon economy.

5 First of all, a problem with the NEM 2.0
6 proposal is the large reduction in export rate,
7 which a lot of folks have talked about. It's based
8 on a flawed and contentious ACC proceeding.

9 And a drastic cut like that so quickly
10 with no glide path with severely impact the economic
11 benefits to many solar-and-storage customers
12 regardless of the financing options which have
13 opened up the benefits of solar to Californians of
14 all income levels. So the idea that solar is only
15 for the wealthy is an idea really from 1998. It's
16 no longer true. This abrupt reduction would create
17 a shock to the industry and its employees and cause
18 a massive decline in the Sacramento market.

19 So we do suggest a glide path, and we also
20 suggest that you take another look at the export
21 rates and the peak periods. We recommend more like
22 21 cents for peak hours and 11.5 cents during
23 non-peak hours.

24 We welcomed your energy storage system
25 proposal, but we suggest it doesn't go far enough.

1 The average incentive between now and 2030 would be
2 \$841 per system. These are folks that would be
3 providing a vital grid service on their own dime, so
4 we think that SMUD should lean forward into that and
5 help folks, adopt a better energy storage proposal.

6 And we'd like to see an expansion of
7 virtual net metering to all multi-tenant properties.
8 That is a critical tool that can help extend the
9 benefits of solar to Californians of all income
10 brackets. And a lot of folks who live in
11 multi-tenant properties, even if they're not
12 designated as low-income, are of lower-income
13 brackets and would be effectively locked out of
14 these benefits.

15 So, in conclusion, we think, you know,
16 it's good to have this discussion, but we don't
17 think this current proposal is going to work that
18 well for solar.

19 And I just want to point out that more
20 utility-scaled solar is going to mean more
21 high-voltage transmission lines, which, as we know,
22 means more wildfires. So I would urge you to look
23 at this again and reconsider. Thank you.

24 SMUD GENERAL COUNSEL LEWIS: Thank you.

25 Next up is Mo Kashmiri.

1 (Upcoming speakers' names announced.)

2 PUBLIC MEMBER MO KASHMIRI: All right.

3 Can you hear me? Mo Kashmiri.

4 SMUD GENERAL COUNSEL LEWIS: Yes.

5 PUBLIC MEMBER MO KASHMIRI: I'm a
6 homeowner that I also just installed solar. And
7 when I installed it, I was really disappointed to
8 hear that -- all of the solar installers kept
9 telling me that SMUD was not friendly to solar, and
10 I just couldn't believe my ears given the history of
11 SMUD and the direction we need to go right now.

12 You know, it took -- will take me 13 years
13 to pay off my system, and I was counting on the
14 rates staying the same, and it should for at least
15 20 years, right? And so I'm paying money outside of
16 my pocket just because I want to make sure we're
17 getting -- I want to get off fossil fuels as fast as
18 possible and get our grid to, you know, 100 percent
19 renewable -- 100 percent non-carbon -- 100 percent
20 carbon-free by 2030.

21 The current plan doesn't go far enough. I
22 would ask the board to reject the plan that's being
23 proposed, especially around net metering, and
24 continue to expand it. I don't think that it values
25 solar enough. We know that the study that this was

1 all based on was incorrect and had lots of flaws in
2 it.

3 But most of all it's because, you know, my
4 son had to decide by going to local school or to go
5 to a further-away school and still do immersion. He
6 said he chose the local school because he didn't
7 want to -- (inaudible) climate change.

8 I want to see us get off of carbon and
9 fossil fuels, such as natural gas, as soon as
10 possible. The current plan doesn't get us there.
11 The worst possible idea on the planet is to start
12 restricting solar subsidies. We need to save our
13 planet. It makes no sense to, you know, cut solar
14 subsidies when we need to be getting off of our
15 fossil fuels as fast as possible.

16 I'd also ask that SMUD make sure that its
17 program is not just targeting low-income
18 multi-family housing but targeting all multi-family
19 housing. That's a critical piece that is missing as
20 well.

21 So, again, I would ask -- I would ask SMUD
22 board to oppose the current plan around Net Energy
23 Metering and continue to expand it and make it
24 broader so that we can actually meet the 2030 goals.
25 And instead of goals, they should be requirements,

1 like, that's just -- you know, I don't think science
2 says any less is doable, and I think our community
3 is worth that. Thank you.

4 SMUD GENERAL COUNSEL LEWIS: Thank you.

5 Next up is Vincent Battaglia.

6 (Upcoming speakers' names announced.)

7 SMUD STAFF JOSUE SWAY GARCIA: We don't
8 have Vincent in attendance, and we still do not have
9 Steve as well, Steve Uhler.

10 So it looks like next would be Alan
11 Escarda. I will go ahead and activate your
12 microphone now.

13 SMUD GENERAL COUNSEL LEWIS: Thank you.

14 PUBLIC MEMBER ALAN ESCARDA: Good evening.
15 Can you hear me?

16 SMUD GENERAL COUNSEL LEWIS: Yes.

17 PUBLIC MEMBER ALAN ESCARDA: Good evening.

18 My name is Alan Escarda. I'm a proud solar
19 provider, SMUD customer living in Sacramento.

20 I'm opposed to the current proposal of
21 7.4 cents. I realize that changes have to be made,
22 but I'm kind of confused on how the value was
23 arrived at. When I looked at the report, it said
24 the societal benefits of my rooftop solar. They
25 calculated monetary benefit, but it wasn't included

1 in the 7.4 cents, but earlier I heard Mr. Poff say
2 it was. So I'm really confused about that.

3 I guess the biggest heartburn I would have
4 is, from the get-go, SMUD staff has been saying that
5 the loss of revenue is a cost. And as far as I'm
6 concerned, my solar system isn't a loss of revenue
7 that's causing costs to SMUD. I mean, I paid for
8 that. That was 20,000 out of my own pocket. So I
9 don't view that as a loss of revenue as a cost that
10 should be included in the calculation of the
11 reimbursement rate. So if it is, I really oppose
12 it.

13 I am okay with connection fees, although
14 the current proposal of \$450 seems pretty high
15 considering PG&E is a lot less than that. So that
16 might be taken a look at too.

17 Probably the other biggest concern I have
18 is in the future I wanted to add additional panels
19 and batteries. I was looking at putting -- buying
20 an electric vehicle. But under this proposal there
21 is no way it pencils out, so I'm really confused by
22 some of the slides I saw earlier that they don't
23 think this proposal would cause any harm to the
24 solar industry. And additional solar systems and
25 batteries being -- would go up, not down.

1 I can tell you with certainty if it goes
2 through, I won't be doing it. Maybe I'll buy a
3 whole-house generator to protect my house if we get
4 power interruptions, which I don't want to do, but
5 it's -- economically it's not viable if we go this
6 route.

7 So I'd like to see what I call the
8 grandfather-death clause be removed so that if I do
9 put in a system with greater energy needs in my
10 household and batteries, that I don't lose my
11 grandfather status.

12 I'd like to see the entire NEM rate
13 transitioned in. It's just too big of an abrupt
14 change. I don't want to see the solar industry
15 decimated.

16 And, finally, I'd like to see the payback
17 period extended past 2030. After all, according to
18 you guys, we invested 250 million over the last
19 20-something years, I think we can afford 10 million
20 more a year after 2030. Thank you.

21 SMUD GENERAL COUNSEL LEWIS: Thank you.

22 We are in the process of getting Steve
23 Uhler a number to call. He does have that. But in
24 the meantime, I will move on to Chiwah Slater.

25 (Upcoming speakers' names announced.)

1 SMUD STAFF JOSUE SWAY GARCIA: So I'm
2 still awaiting Steven Uhler here. So I'll go ahead
3 and do the next person. Bear with me one moment
4 while I activate the microphone for Chiwah Slater.

5 PUBLIC MEMBER CHIWAH SLATER: Hello. Can
6 you hear me?

7 SMUD GENERAL COUNSEL LEWIS: Yes.

8 PUBLIC MEMBER CHIWAH SLATER: Okay, good.

9 I am concerned about the precedent that
10 SMUD is setting for the rest of the state and the
11 rest the country. I don't live in Sacramento. I
12 live in Southern California, but what you're doing
13 in Sacramento is very likely to affect us down here,
14 and you're setting a precedent.

15 I was married for 20 years to a solar
16 salesman and have had ample opportunity to watch
17 what I can only call the destruction of the solar
18 industry over the last few years. I've heard some
19 people call it a well-established industry tonight.

20 But, in fact, the solar industry is really
21 suffering right now. And the proposal that you come
22 up with, in my point of view, threatens to
23 discourage from investing in solar and so further
24 threatens this industry.

25 In particular, I want to voice my concern

1 about your proposal to end the NEM 1.0 rate for
2 existing solar customers in December 2030. Not all
3 existing solar customers are high income. And if
4 they're not allowed to stay on the current NEM
5 tariff until 20 years after interconnection, which
6 is the state standard, then they'll be severely
7 penalized. And this is especially true for those
8 who have recently switched to solar and will be
9 upside-down on their systems ten years from now.

10 So another point that bothers me is the
11 fact that your proposal fails to include
12 multi-family and multi-tenant commercial properties
13 in your VNEM. Low-income housing is unavailable to
14 many of these people, and I might say I'm one of
15 them. So people like me, we have no choice but to
16 share a home with other people. And if we're not
17 included in your plan, that really excludes us from
18 the opportunity to have solar.

19 We have reached the point, I believe,
20 where we are faced with the possibility of not
21 having a plan to condition -- you know, not having
22 an ability to sustain life on this plant, and the
23 decisions that you make are going to affect people
24 far, far beyond Sacramento.

25 And so I think that -- I think that your

1 proposals -- NEM 2.0 proposal appears to be moving
2 in exactly the wrong direction, and I hope you'll
3 take a closer look at the disastrous future that
4 you're setting us up for. Thank you.

5 SMUD GENERAL COUNSEL LEWIS: Thank you.

6 Do we have Steve Uhler on the line?

7 SMUD STAFF JOSUE SWAY GARCIA: I do have
8 him on the line. Just let me go ahead and activate
9 him here.

10 Mr. Uhler, can you hear us? Mr. Uhler?

11 PUBLIC MEMBER STEVE UHLER: Hello?

12 SMUD STAFF JOSUE SWAY GARCIA: I can hear
13 you.

14 Can everyone hear, Mr. Uhler?

15 SMUD GENERAL COUNSEL LEWIS: I do.

16 PUBLIC MEMBER STEVE UHLER: I do not know
17 where we are in the meeting.

18 SMUD GENERAL COUNSEL LEWIS: We are in the
19 public comment period.

20 PUBLIC MEMBER STEVE UHLER: I have no idea
21 what has been said recently. I see a clock and
22 somebody talking.

23 I need to be allowed a dialogue with the
24 board secretary about the placement of my alternate
25 rate proposal, why Mr. Graham got his place on the

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1 board meeting page yet mine is not there. I have no
2 idea what the public is able to see and the board is
3 able to see.

4 SMUD GENERAL COUNSEL LEWIS: Mr. Uhler,
5 your time --

6 PUBLIC MEMBER STEVE UHLER: So, once
7 again, I have no idea from the video that's being
8 streamed to me where we are in the meeting.

9 SMUD GENERAL COUNSEL LEWIS: You can
10 provide your alternative proposal. You've got two
11 and a half minutes.

12 PUBLIC MEMBER STEVE UHLER: I cannot hear
13 you.

14 SMUD GENERAL COUNSEL LEWIS: Please
15 provide your alternative proposal.

16 SMUD STAFF JOSUE SWAY GARCIA: Mr. Uhler,
17 were you able to hear that?

18 PUBLIC MEMBER STEVE UHLER: I could not
19 hear. What are we doing right now?

20 SMUD STAFF JOSUE SWAY GARCIA: So you are
21 on the clock, and our chief legal staff has already
22 said --

23 PUBLIC MEMBER STEVE UHLER: I'm not on the
24 clock because I did not know to start. What am I
25 doing? What am I doing here?

1 I do not see my alternate rate proposal
2 next to Mr. Graham's on the board meeting page. I
3 have no idea what the board has been given of my
4 comments. My comments are not in -- on the rates
5 page. There's a couple comments on the rates
6 comment page. Those comments are missing.

7 So how are we going to correct this? The
8 Brown Act allows me to have that information
9 provided to me without delay. So if you want to
10 take some time to post what the board has on the
11 board meeting page, I'll wait while you let me know
12 what the board has, so I know what to say before any
13 clock starts.

14 SMUD GENERAL COUNSEL LEWIS: The clock has
15 started. Please continue with your comments.

16 PUBLIC MEMBER STEVE UHLER: I do not
17 want -- you know, I do not know what the board has
18 read or any of that at all. I do not see it next to
19 Mr. Graham's on the board meeting page.

20 I do not understand why my alternate rate
21 proposal has less advantage than Mr. Graham's rate
22 proposal. The Brown Act requires you to provide
23 that information without delay. This happened
24 before where you weren't prepared with my proposal
25 and I came up to comment, and then I had to stand

1 there while somebody went and fetched the proposal.

2 So the only way you can do this -- because
3 your system is so pro is to place it on the board
4 meeting page so I can see what the board is seeing.
5 I'm willing to give you time to populate that page
6 so I know what they've seen so I do not duplicate
7 testimony as required per PUC 14403.5. So are you
8 going to do that?

9 SMUD GENERAL COUNSEL LEWIS: Mr. Uhler, we
10 have emailed several times today. I have told you
11 several times --

12 PUBLIC MEMBER STEVE UHLER: You have not
13 emailed me one thing at all. It's just board
14 secretary (inaudible) --

15 SMUD GENERAL COUNSEL LEWIS: Through
16 the --

17 PUBLIC MEMBER STEVE UHLER: You have not
18 emailed me.

19 SMUD GENERAL COUNSEL LEWIS: Through the
20 public comment inbox, we've explained that your
21 presentation was provided to the board, your
22 comments were provided to the board. You had three
23 minutes that just expired.

24 PUBLIC MEMBER STEVE UHLER: My
25 presentation -- but it also stated that my

1 supporting material. I don't know if you got even
2 my most recent supporting material.

3 SMUD GENERAL COUNSEL LEWIS: We will be
4 moving on.

5 PUBLIC MEMBER STEVE UHLER: -- (inaudible)
6 requirements for renewable energy sources. Do I at
7 least know you have that?

8 SMUD GENERAL COUNSEL LEWIS: Yes.

9 PUBLIC MEMBER STEVE UHLER: Has the board
10 been given that document?

11 SMUD GENERAL COUNSEL LEWIS: We have
12 provided everything that you have sent us to our
13 board through emails in the many, many emails you
14 sent today and the many, many replies to public
15 comment inbox --

16 PUBLIC MEMBER STEVE UHLER: Not with the
17 many, many staff. You never responded to me.

18 (Simultaneously speaking, inaudible.)

19 SMUD GENERAL COUNSEL LEWIS: Mr. Uhler,
20 your time has elapsed and --

21 BOARD PRESIDENT BUI-THOMPSON: Sway, can
22 you please mute Mr. Uhler.

23 His time has passed. Our chief legal
24 officer has explained that we have all received his
25 information, repeated several times that he had his

1 time to speak, and he chose to use it not presenting
2 his alternative request.

3 So for the public to know, as you heard,
4 we gave him many opportunities to present, but he
5 chose to use his time in an alternate manner.
6 Unfortunately, his time of three minutes has been
7 completed. So we will move on to the next speaker.

8 SMUD GENERAL COUNSEL LEWIS: Next speaker
9 is David Mueller.

10 (Upcoming speakers' names announced.)

11 SMUD STAFF TONI STELLING: It looks like
12 David Mueller is not currently logged in, so we will
13 move on to Sara Long and will unmute her mike now.

14 PUBLIC MEMBER SARA LONG: Great. Thank
15 you. Can I get a sound check?

16 SMUD GENERAL COUNSEL LEWIS: Yes, we can
17 hear you.

18 PUBLIC MEMBER SARA LONG: Wonderful.

19 Good evening, everybody. My name is Sara
20 Long, and I'm here representing Sunrun, the nation's
21 leading provider of residential solar storage and
22 energy services. We've installed over 4 gigawatts
23 of behind-the-meter solar nationwide, so we have a
24 pretty good understanding of the factors that
25 encourage homeowners to install solar.

1 We really appreciate the NEM successor
2 proposal does not contain punitive fixed monthly
3 charges. We think this is a smart policy.

4 However, the underlying economics of the
5 NEM successor simply don't support a healthy solar
6 market, as you've heard here tonight, for SMUD
7 customers or solar-plus-storage customers. And we
8 feel that Sacramento -- the Sacramento region
9 desires and really needs more distributed options
10 going forward.

11 Thank you so much for your time.

12 SMUD GENERAL COUNSEL LEWIS: Thank you.

13 Next up, Steve Letendre.

14 (Upcoming speakers' names announced.)

15 PUBLIC MEMBER STEVE LETENDRE: Good
16 evening. Can you hear me?

17 SMUD GENERAL COUNSEL LEWIS: Yes.

18 PUBLIC MEMBER STEVE LETENDRE: Yes, thank
19 you. Again, my name is Steve Leten- --

20 SMUD GENERAL COUNSEL LEWIS: I can no
21 longer hear you. I don't know if that's just me.

22 BOARD PRESIDENT BUI-THOMPSON: No, I can't
23 hear him either.

24 Mr. Letendre, do you mind starting over --
25 testing your mike again. We can restart your --

1 PUBLIC MEMBER STEVE LETENDRE: Can you
2 hear me now?

3 BOARD PRESIDENT BUI-THOMPSON: Yes, yes.
4 You can start over. We've put three minutes back on
5 the clock.

6 PUBLIC MEMBER STEVE LETENDRE: Okay.
7 Thank you.

8 So, again, I am the policy director at
9 Freedom Forever. Freedom Forever is a national
10 residential solar installation company, and we're
11 based in Temecula, California, founded in 2011, and
12 we have operations in 24 states across the country.
13 Freedom Forever is driving the distributed energy
14 resolution by scaling solar and expanding access to
15 everyone. We have six branches in California. Our
16 Sacramento branch, located at 990 of Riverside
17 Parkway, has 70 full-time employees. Freedom
18 Forever has installed over 65 megawatts of rooftop
19 solar in California the past year and a half with
20 approximately 1.2 megawatts of this total within
21 SMUD's service territory.

22 I recall that SMUD pioneered the concept
23 of sustained orderly development of the
24 grid-connected photovoltaic market. Sustained
25 orderly development provides a regulatory certainty

1 that is necessary for private businesses to plan for
2 and invest in serving a market. I firmly believe
3 that the current NEM 2.0 proposal is not consistent
4 with this fundamental principle.

5 Our internal analysis finds that the
6 NEM 2.0 proposal harms the economics of residential
7 solar and will, therefore, decrease adoption. If
8 the current proposal is adopted, we anticipate a
9 significant reduction in our installation volume
10 within SMUD's service territory.

11 Our branch in Salt Lake City, Utah, is
12 experiencing a significant reduction volume in 2021
13 due to the Utah Public Service Commission's decision
14 to reduce the NEM export rate from 9.2 cents per
15 kilowatt hour down to just under 6 cents per
16 kilowatt hour. In 2020, Freedom Forever installed
17 just under 2 megawatts in this state. We are on
18 track this year to install far less than 1 megawatt
19 in rooftop solar in Utah.

20 Freedom Forever is also concerned about
21 the provision in the proposal that solar customers
22 on the existing NEM 1.0 rate will be placed on the
23 NEM 2.0 rate in 2030. Just last week we signed a
24 contract with Christina who lives in Oregonville --
25 Orangevale to install 11 425-watt solar panels on

1 the roof of her home. After nine years, the value
2 of investment would be radically reduced. If the
3 NEM 2.0 proposal is adopted, what shall we tell
4 Christina?

5 On behalf of Freedom Forever, I would
6 respectfully request that the board amend the
7 current NEM 2.0 proposal to one that is in line with
8 the principle of sustained, orderly development of
9 the solar market to avoid a major market
10 contraction. Waiting to see how the market responds
11 to the extreme changes to the NEM program is not
12 consistent with this ideal. When the market
13 contracts, we believe it will be -- it will have --
14 as has been the case in other regions, jobs will be
15 lost as will momentum towards getting SMUD's 2030
16 clean energy vision.

17 Thank you for the opportunity to provide
18 these comments this evening.

19 SMUD GENERAL COUNSEL LEWIS: Thank you.

20 Next up is David Salzmann.

21 (Upcoming speakers' names announced.)

22 SMUD STAFF JOSUE SWAY GARCIA: And I do
23 not show David Salzmann. I will go ahead and
24 promote Paul Sullivan with the ability to speak.

25 I appear to have lost Paul. Let me go

1 ahead and move on to Steve.

2 PUBLIC MEMBER PAUL SULLIVAN: Can you hear
3 me? This is Paul.

4 SMUD GENERAL COUNSEL LEWIS: Oh, Paul.
5 Yes, we can hear you, Paul.

6 PUBLIC MEMBER PAUL SULLIVAN: Yes. Sorry.
7 Yeah, I forgot to unmute. Sorry about that.

8 Good evening, Board members. My name is
9 Paul Sullivan. I'm a SMUD customer in Carmichael,
10 and I represent one of the many sun-powered dealers
11 currently providing SMUD customers with reliable
12 solar and storage systems. I've been in the solar
13 industry for over 16 years and have had the pleasure
14 of assisting thousands of families from all walks of
15 life in reducing their energy costs.

16 I would like to state my opposition to the
17 proposed rate plan. First, I would like to echo
18 Mr. Patrick Sterns's comments with Sunpower
19 Corporation and would like to emphasize a couple of
20 points.

21 Number one, the full stop of the NEM 1.0
22 tied to a static date, this is dramatically unfair
23 to those customers that move to solar in say 2029
24 under one rate plan and then be automatically moved
25 to the very next year with another rate plan that

1 severely diminishes their investment. The standard
2 in the industry is 20 years from the point of
3 agreement. I would be delighted with that sort of
4 arrangement.

5 Number two, the higher than normal
6 connection fee, this is only adding to the overall
7 cost of those customers that want to move to solar,
8 including those customers in the low-income bracket.
9 While I don't disagree with connection fees in
10 general, they should be more in line with what the
11 normal is, which is roughly around \$145.

12 Number three, the storage incentive, while
13 it is positive in general, it's truly not enough to
14 drive adoption with the availability of storage at
15 a -- at a detriment and the high cost of storage as
16 it stands right now. We need a little bit more
17 incentive to make that happen.

18 Thank you for your time.

19 SMUD GENERAL COUNSEL LEWIS: Thank you.

20 Next up we have Steve Sedio.

21 (Upcoming speakers' names announced.)

22 SMUD STAFF JOSUE SWAY GARCIA: And I do
23 not see Steve Sedio in here. I'm going to go ahead
24 and go to Benjamin Davis. Bear with me one moment.

25 There you go, Mr. Davis. Your microphone

1 has been enabled.

2 PUBLIC MEMBER BENJAMIN DAVIS: Good
3 evening. Benjamin Davis, California Solar and
4 Storage Association.

5 So let me start by saying that it is
6 incredibly important to get this right given the
7 ever present and inescapable impacts of climate
8 change we are all experiencing just with the smoke
9 right out my window here in Sacramento.

10 And -- (inaudible) that solar
11 technologies, including storage, are a cornerstone
12 of California's efforts to fight climate change and
13 build more resilient communities, and now is not the
14 time to put the brakes on solar in SMUD.

15 As you all know, we are very concerned
16 about the current proposal because it will contract
17 the market. Roseville saw a 43 percent drop in the
18 solar market for existing homes when they made
19 similar changes. Imperial Irrigation District and
20 Modesto saw even greater declines when they made
21 similar cuts to their NEM programs.

22 And while SMUD is simultaneously, yes,
23 proposing new battery subsidies, these programs are
24 insufficient to drive a market the size of what you
25 have today.

1 And, Mr. Poff, with all due respect, there
2 were a lot of problems with the data you presented
3 and how it was presented, but one of them was your
4 claim that the payback period of solar-and-storage
5 projects will be 12 years. And we ran the numbers
6 with realistic assumptions, and the payback periods,
7 even with the subsidies, are more than 15 and a half
8 years.

9 And financing, which is used by lower and
10 middle income households that don't have the cash on
11 hand to buy the system outright, is outright
12 uneconomical.

13 So this current proposal, with it you are
14 not replacing standalone solar with a similarly
15 sized solar-and-storage market, rather you are
16 gutting your solar market and replacing it with an
17 exceedingly small storage market that only the
18 wealthy will be able to afford.

19 And, finally, SMUD, you should do what is
20 right by your customers and ours. But the proposal
21 as it stands now would move tens of thousands of
22 solar customers off of NEM 1 rates come 2031, which
23 violates the spirit of Assembly Bill 327 and goes
24 against a longstanding principle in California. We
25 strongly urge SMUD to maintain protections for

1 legacy customers that are commensurate with the rest
2 of the state.

3 To be clear, we believe that there are
4 some decent ideas in the current NEM proposal, and
5 staff has spent significant time developing them.
6 But during this opportunity for SMUD to hear from
7 the community and make changes to the proposal,
8 let's take some of those ideas and build upon them.
9 Let's make sure SMUD remains a national clean-energy
10 leader, and let's do it together.

11 SMUD is the fifth largest utility in
12 Sacramento, the sixth largest public utility in the
13 country. What you do on this proposal really
14 matters. It matters for the businesses I represent,
15 for the workers they employ right here in the
16 Sacramento region. It matters for your customers
17 who want clean air and clean energy and energy
18 choice, and it matters for the planet. Thank you.

19 SMUD GENERAL COUNSEL LEWIS: Thank you.

20 Next up, Jonathan Gemma.

21 (Upcoming speakers' names announced.)

22 PUBLIC MEMBER JONATHAN GEMMA: Good
23 evening. Can you hear me?

24 SMUD GENERAL COUNSEL LEWIS: Yes.

25 PUBLIC MEMBER JONATHAN GEMMA: Thank you.

1 My name is Jonathan Gemma with Aztec
2 Solar. We are a local solar contractor that
3 celebrated our 40th year in the solar industry last
4 year.

5 Your decisions on the NEM 2 program will
6 have lasting effects on the adoption of solar for
7 your customers. It is our opinion that with the
8 export rate of 7.4 cents and a high interconnection
9 fee, the economics simply deter the adoption of
10 solar and battery storage. We'll see a drop in
11 installations that will have an enormous effect on
12 our company and other solar companies in the region.

13 We will see paybacks, whether cash or
14 finance, well above 14 years, which is more than the
15 warranty of the battery systems you would like to
16 see installed.

17 I believe the battery subsidies aren't big
18 enough to move the market especially with the
19 lowered export rate suggested.

20 I ask that you amend the proposal so that
21 we will not see a contraction of the market. A
22 wait, see, and adjust approach simply does not work.
23 It takes time to build up the effects of a market
24 that becomes unstable.

25 We have seen other municipalities change

1 their expert rates with very public knowledge of the
2 significant drop in adoption rates.

3 We also would like to see consistency in
4 the export rate for solar customers. If you change
5 the export rate every couple of years to adjust for
6 the market for existing solar companies, customers,
7 it becomes impossible to model investment for
8 customers not knowing what the compensation would
9 be -- that they would be receiving. I suggest
10 locking in solar customers to their original export
11 rate for 20 years.

12 In our conversations, the solar industry
13 have provided possible solutions to ease change.
14 One such solution was implementing a glide path.
15 SMUD staff are saying a glide path is
16 unconstitutional due to Prop. 26. But SMUD staff
17 should be taking a serious look at Exception 2 of
18 Prop. 26, which applies to utility rates.

19 Additionally, my understanding is that
20 Prop. 26 concern is based on the notion that other
21 customers would have to pay higher bills to
22 unjustified higher export rate. However, there is
23 ample justification in the Value of Solar Study to
24 have a higher export rate based on the societal
25 benefits of solar.

1 The Value of Solar Study gives numbers for
2 those benefits, and E3 always said it was the SMUD
3 Board's discretion whether to include these numbers
4 in the export rate. Therefore, if SMUD wanted to
5 include those, some of those benefits for customers
6 that went solar next year and the year after and the
7 year after, stepping down they could. Thank you.

8 SMUD GENERAL COUNSEL LEWIS: Thank you.

9 Next up is Janna West-Heiss.

10 (Upcoming speakers' names announced.)

11 SMUD STAFF JOSUE SWAY GARCIA: Thank you,
12 Laura.

13 And Janna West-Heiss is absent, so I am
14 activating Jennifer Tanner's microphone.

15 And, Jennifer, your microphone has been
16 activated, and you can unmute when you are ready.

17 PUBLIC MEMBER JENNIFER TANNER: Can you
18 hear me?

19 SMUD GENERAL COUNSEL LEWIS: Yes.

20 PUBLIC MEMBER JENNIFER TANNER: Okay,
21 wonderful. Thank you, Members of the board, for
22 this opportunity to speak. I appreciate it.

23 I'm Jennifer Tanner, leader of Indivisible
24 California Green Team, the environmental arm of
25 Indivisible California's 81 Indivisible groups

1 representing 80,000 members.

2 Because your proposal affects all of us
3 and is the continuation of the attack on rooftop
4 solar that's a feature of the CPUC NEM campaigns, I
5 am speaking here.

6 Notwithstanding the good work that SMUD
7 has done in so many things, I have to disagree with
8 the proposals as you present it. We have seen what
9 happened with these proposals to kill any -- how it
10 killed rooftop solar in Utah and in Arizona. And
11 they tried to do it in Nevada, and it was such a
12 failure that they had to undo it.

13 So you have some kind of hopeful
14 statistics, but these are real-life examples I'm
15 giving you that you can check with reality how these
16 plans to reduce NEM will help kill rooftop solar.
17 Other municipalities have made similar cuts to NEM
18 and have had significant declines in the market,
19 regardless if you claim otherwise.

20 And just under 50 percent of all new
21 rooftop solar has come from middle and low income
22 because they see the value, and they are not rich
23 people, and this needs to be said.

24 We have seen a study that we will save
25 120 billion over the next 30 years in California if

1 we continue what we're doing with rooftop solar. We
2 continually save money by having rooftop solar
3 support the grid. We saved 2.6 billion in
4 California in 2018 alone.

5 Each of the faulty arguments about the
6 non-reality of a cost shift always leaves out the
7 real cost in comparing costs of rooftop solar and
8 always leaves out the most important real costs,
9 namely, the exorbitant cost of long-distance utility
10 lines, the fires caused by the long-distance utility
11 lines, and the blackouts that come from the utility
12 wires and all these harms to society that do not
13 happen with rooftop solar.

14 These costs are always left out, and if
15 they were included -- the billions of money in
16 wires, fires, and blackouts -- the whole financial
17 story would change. Even the CPUC admits the huge
18 cost these utility fires are costing everyone and
19 has no solution.

20 We should change the fees to be like
21 LADWP, back to 135. And, again, the NEM change you
22 are planning will harm rooftop solar business, make
23 no mistake about it. The great expansion of rooftop
24 solar that has been so successful will die.

25 And the new disasters that are our new

1 reality, all of the climate things, we need to
2 actually increase rooftop solar not help diminish
3 it. Thank you very much.

4 SMUD GENERAL COUNSEL LEWIS: Thank you.

5 Next up, Kathleen Nicholson.

6 (Upcoming speakers' names announced.)

7 PUBLIC MEMBER KATHLEEN NICHOLSON: Yes,
8 this is Kathy Nicholson. Are you able to hear me?

9 SMUD GENERAL COUNSEL LEWIS: Yes.

10 PUBLIC MEMBER KATHLEEN NICHOLSON: Okay.

11 Good evening, President Bui-Thompson,
12 Members of the board, and SMUD staff. My name is
13 Kathy Nicholson. I'm an energy engineer, an energy
14 consultant with over 30 years of experience in
15 various areas of clean energy including energy
16 efficiency, distributed solar energy and storage and
17 electrification. Many of my years of experience
18 were gained at one of California's investor-owned
19 utilities.

20 The future of decarbonized energy and a
21 climate-safe, truly equitable world is 100 percent
22 distributed renewable generation, distributed energy
23 storage in its many forms on a network of small
24 microgrid -- or smart microgrids using artificial
25 intelligence to leverage the power of a truly free

1 market.

2 It is not centralized generation. It is
3 not wasteful and dangerous transmission lines moving
4 electricity over unnecessarily long distances. It
5 is not monopolies. It is not the old long-obsolete,
6 command-and-control business models used by
7 utilities for over 100 years. It is not any system
8 that discourages locally generated, locally used,
9 and locally traded energy. It is not any system
10 that discourages local energy independence, local
11 self-reliance, local energy -- lower energy costs
12 and greater energy resilience for its prosumers.

13 SMUD's proposed changes to its NEM rates
14 do not meet these requirements. So SMUD needs to go
15 back to the drawing board with a fundamentally
16 different attitude, an approach that is built on a
17 distributed and truly equitable energy future.
18 Thank you.

19 SMUD GENERAL COUNSEL LEWIS: Thank you.

20 Next up, Subhash Kale.

21 (Upcoming speakers' names announced.)

22 SMUD STAFF JOSUE SWAY GARCIA: Subhash, I
23 am trying to activate your microphone, but you are
24 using an older version of Zoom that does not allow
25 this option. I don't know if you are able to try to

1 update your Zoom client, and we can come back to you
2 if you come back in, possibly.

3 And I went ahead and activated Keith's
4 microphone in the meantime.

5 PUBLIC MEMBER KEITH UMEMOTO: Hello. Can
6 you hear me?

7 SMUD GENERAL COUNSEL LEWIS: Yes.

8 PUBLIC MEMBER KEITH UMEMOTO: Oh, great,
9 great. Good evening, Chair Bui-Thompson and other
10 board members. Thank you for the opportunity to
11 comment.

12 My name is Keith Umemoto, and I'm a SMUD
13 customer who installed a solar panel a few years ago
14 and work for a person that many of you should know,
15 not because he's alive, but Senator Al Alquist, who
16 authored SB 656, which created the net metering
17 providing incentives to install solar.

18 First, I want to thank you to have -- SMUD
19 for having such an aggressive plan to reduce carbon
20 and emission.

21 But at this point in time, I'm testifying
22 because the proposal to change the time-of-day net
23 metering and connect charges are contrary to SMUD's
24 ability to achieve its goal in reducing carbon
25 emissions.

1 Let me be perfectly clear, I am not
2 opposing subsidizing low-income rate payors. I do
3 not believe that a proposal would suggest to pit one
4 group with one another.

5 I invested over \$20,000 that SMUD doesn't
6 calculate in their budget. Based upon an extensive
7 cost calculation taking out a home equity loan,
8 research of my costs extensively, asking some power,
9 put on a spreadsheet the kilowatt hours solar
10 generated by each hour, 365 days a year, and based
11 upon the time-of-day use at 3:00 to 7:00 p.m. My
12 investment of 20,000 was upfront costs and a major
13 outlay. And it -- I have not gotten my return on my
14 investment.

15 And ending this subsidy in 2030 would just
16 dramatically increase and extend the repayment of my
17 investment. So the return on my investment is
18 certainly questionable with this proposal, and it
19 comes close to saying maybe I shouldn't have done
20 this. Because when you consider all of the
21 inflationary rates, it doesn't pay out.

22 So the proposal -- I've been making --
23 I've been looking at is based upon my own personal
24 calculation. Your decision will impact not only
25 SMUD customers but also have a domino impact on all

1 utilities.

2 SMUD is generally considered a very
3 progressive utility to other utilities who will make
4 similar changes. There is no question that this
5 would impact not just the solar industry here in the
6 SMUD territory but beyond.

7 So, anyway, I should highlight AB 1139,
8 which has a similar parallel to this program, was
9 killed in the Assembly. And contrary to what
10 staff's comments are, I don't believe this is a --
11 beneficial for solar installers or users or -- and
12 maybe the encouragement should be increasing
13 subsidies to HEAP or provide incentives for
14 low-income folks even more so to install solar.
15 That should be the direction that SMUD takes.

16 SMUD GENERAL COUNSEL LEWIS: Thank you.

17 Do we have Subhash on the phone?

18 SMUD STAFF JOSUE SWAY GARCIA: I still do
19 not show that Subhash has returned.

20 SMUD GENERAL COUNSEL LEWIS: The next up
21 is Marcy Winograd followed by Karinna Gonzalez.

22 PUBLIC MEMBER MARCY WINOGRAD: Hi. Can
23 you hear me?

24 SMUD GENERAL COUNSEL LEWIS: Yes.

25 PUBLIC MEMBER MARCY WINOGRAD: Yes, great.

1 Hi. Thank you so much for this opportunity to
2 speak. I'm Marcy Winograd. I am with CTA Divest,
3 which is an effort to get our teacher pension fund
4 to divest from the climate-catastrophe-producing,
5 fossil-fuel industry. I thank everybody here
6 tonight for their interest in solar energy and --
7 you know, I have to stand back.

8 I am in Santa Barbara. I'm not in
9 Sacramento, but I know that what you do here tonight
10 will impact people throughout the state of
11 California. They will be looking to you for a
12 model. So we --

13 I would say -- I would urge you to be very
14 judicious and very cautious in adopting any plan
15 that would disincentivize solar energy. And that's
16 what I'm hearing a lot of in the comments, that this
17 plan includes reduced NEM export rates, higher
18 interconnection fees, limiting the system size to
19 current electrical needs even if the customer is
20 planning to purchase an electrical vehicle or
21 electrify utilities in the near future, that you
22 want to end subsidies in 2030 even though,
23 theoretically, in California how many sunny days do
24 we have? A lot, right?

25 We should have free solar energy. We

1 should allow customers to invest in solar energy to
2 make a greater return and not to be burdened by
3 taking out huge home-equity loans and then seeing
4 their subsidies end.

5 I also wanted to mention that these
6 policies that you're looking at could potentially
7 contract the solar market that we should be
8 expanding, not contracting.

9 Also, in spite of repeated calls from the
10 solar industry, solar customers, environmentalists,
11 you are proposing -- or the staff is proposing to
12 allow customers to install a solar system larger
13 than their current electrical needs if they are
14 planning to get an EV or electrify in the near
15 future, and you are imposing limitations on system
16 sizes.

17 So all of this is of great concern. I'm
18 not a solar expert, but I am an environmentalist,
19 and I do want to see California tap into the great
20 potential of the sunshine that we have because, as
21 others have stated, we are in a climate emergency,
22 wildfires, smoke-filled air. We can't breath. I'm
23 ordering air purifiers right after I get off this
24 call.

25 So I hope you'll reconsider what has been

1 presented to you tonight and amend what's on the
2 agenda. Thank you so much.

3 SMUD GENERAL COUNSEL LEWIS: Thank you.

4 Next up, I understand we have Subhash on
5 the phone.

6 SMUD STAFF JOSUE SWAY GARCIA: Yes.

7 I'm going to try to activate your
8 microphone now, Subhash. Subhash, I'm getting the
9 same error message that your client has too old of a
10 version for Zoom to allow this option.

11 We can go ahead and try Karinna next, if
12 that's okay. Karinna, your microphone has been
13 activated.

14 PUBLIC MEMBER KARINNA GONZALES: Good
15 evening, Chair and Board members. My name is
16 Karinna Gonzales, and I am with Hammond Climate
17 Solutions.

18 I'm calling in today to respectfully urge
19 the board to amend the proposal so that solar can
20 continue to grow sustainably. High interconnection
21 fees, limitations on Virtual Net Energy Metering,
22 and limitations on system sizes are barriers on the
23 market that should be removed.

24 We are in a climate emergency, and the
25 most recent IPCC report was clear, that we need to

1 rapidly deploy clean energy and phase off of dirty
2 fossil fuels. We should be protecting rooftop solar
3 and making solar and storage more accessible,
4 especially in communities of concern, not making it
5 less attractive. The solution to expanding access
6 to distributed energy is not to make going solar
7 harder and extending payback periods.

8 Lastly, I would like to caution the board
9 against taking NRDC's support of this as a blanket
10 buy-in from environmental groups, as they have a
11 long history of aligning with investor-owned
12 utilities to oppose the expansion of rooftop solar
13 and supporting the continued use of dirty energy.

14 I hope that you will continue to support
15 the growth of solar and storage and amend the
16 current proposal. Thank you.

17 SMUD GENERAL COUNSEL LEWIS: Thank you.

18 And except for Mr. Kale, that is all of
19 the oral comments I believe that we have for tonight
20 on this item.

21 We do have some written comments that we
22 can have read into the record. And perhaps we can
23 do that while we continue to figure out if we can
24 get Mr. Kale on the phone.

25 So if we can queue that up, that would be

1 wonderful.

2 DIGITIZED VOICE: Public comment number
3 one:

4 "Severin Borenstein. Hello. I
5 would like to weigh in in favor of the SMUD
6 2021-22 Rate Proposal. I think it is an
7 important first step in moving policy on
8 Distributed Energy Resources to focus on
9 compensating the value these resources bring
10 to the grid. As we battle the climate
11 crisis, there is quite a lot of uncertainty
12 about the value of different low-carbon
13 resources in different locations on the
14 grid.

15 "This proposal improves the alignment
16 of financial incentives with the best
17 available knowledge today about the value of
18 DERs. In my view, it probably is still
19 overly optimistic in valuing the
20 contribution of DERs and in the vision for
21 the size of the DER role in the grid.
22 However, I do believe that DERs have an
23 important role to play, and our knowledge of
24 the most cost-effective low-carbon grid
25 architecture continues to evolve. At this

1 point in that evolution, the proposed
2 changes are a prudent step in the right
3 direction.

4 "I would also like to commend the
5 expanded use of Critical Peak Pricing in the
6 proposal. SMUD has been a leader in this
7 important area, which will be crucial to
8 grid balancing as evening net peak demands
9 grow due to a warming climate and increased
10 solar adoption. CPP is the most
11 proven-effective tool in eliciting
12 demand-side adjustment to help balance the
13 grid when it is under stress. Sincerely,
14 Severin Borenstein."

15 DIGITIZED VOICE: Public comment number
16 two:

17 "Lee Miller. The SMUD Board members
18 have expressed a desire for NEM 2.0 to grow
19 the solar market in Sacramento, but the
20 executive staff has shown, once again, that
21 they don't have the same desire.

22 "As the basis for the proposal, SMUD
23 executive staff used the water carrier for
24 the California Utilities and the CPUC
25 consulting company, E3, report as the basis

1 for SMUD's NEM 2.0 proposal. The SMUD
2 website is full of public comments regarding
3 the flaws in the E3 study.

4 "During a SMUD board meeting, over 80
5 people were waiting to make their public
6 comments on this flawed study, but many had
7 to drop off the line because the meeting was
8 running long and the SMUD Board decided not
9 to be flexible to let people make their
10 comments when a panel participant offered to
11 give up their time on the agenda. But the
12 executive chose to use the bad data anyway.
13 When bad data is used, well, as the old
14 saying goes, 'Garbage in and garbage out.'

15 "SMUD staff claims that the large
16 reduction in export credits will not impact
17 the market, a puzzling and insincere claim.
18 Staff is projecting that their proposed NEM
19 2.0 plan will lead to 39,000 additional
20 solar-only customers by 2030, equivalent to
21 4,300 projects per year, which is nearly the
22 current installation rate. SMUD's NEM 2.0
23 proposal will bring the number of PV-only
24 projects closer to zero according to the
25 industry initial estimates. An export rate

1 of 7.4 cents kWh would also jeopardize the
2 new solar homes mandate as the Energy
3 Commission can only enforce requirements if
4 they are cost-effective.

5 "Further, last year, SMUD pushed
6 through a special allowance under the state
7 building code to build utility-scale power
8 plants in place of rooftop solar
9 incorporated into the building. SMUD's NEM
10 2.0 proposal includes incentives for energy
11 storage systems. Great news, but customers
12 enrolled in Critical Peak Pricing or the
13 Virtual Power Plant program will receive
14 additional benefits, but SMUD has yet to
15 release the details.

16 "The board has promised transparency,
17 but as usual, the executive staff does not
18 unless they are pressured by customers,
19 someone raises an issue to their board
20 member, or someone asks for a public records
21 request.

22 "Other proposals presented by SMUD
23 staff related to solar will further impede
24 the market. SMUD would like residential
25 interconnection fees to increase to \$475 for

1 systems 10 kW and \$900 for systems greater
2 than 10 kW. Commercial interconnection fees
3 would range from \$2,500 to \$5,000. Utilities
4 should be able to recoup the costs of
5 interconnecting systems, but SMUD-proposed
6 fees are significantly higher than the fees
7 in other utilities."

8 DIGITIZED VOICE: Comment number three:

9 "Sean Frame. I am writing to
10 address your proposed changes to
11 solar-and-storage rates and the terms of
12 those rates. I relocated to Sacramento from
13 Placerville about a year ago. At my old
14 residence, I installed solar panels in an
15 array that was about the right size for my
16 residence and needs. I did so with an
17 understanding of the rough payback time,
18 based upon the rates and the way my utility,
19 PG&E, would compensate me for generating
20 excess electricity.

21 "When I moved to Sacramento,
22 installing solar at my residence was at the
23 top of my list of items to do at my home.
24 In doing my research, I discovered
25 immediately that SMUD was proposing new

1 rates of compensation and that the sizing of
2 my system would be limited to the past usage
3 at my residence. Both of these factors
4 immediately gave me pause. Should I invest
5 my money in a system when the payback time
6 might change? Does it make sense to
7 purchase a system that is too small because
8 my residence has been occupied by my
9 90-year-old mother-in-law who used much less
10 electricity than a family of four with
11 children doing distance learning and adults
12 working from home? Just the uncertainty was
13 enough for me to reconsider installing
14 solar.

15 "Now that I see what you are
16 proposing, I have to say that solar would no
17 longer make sense for me and my family. I
18 say that as someone who is keenly aware of
19 how climate change is threatening the future
20 of our species and as the parent of two sons
21 who will inherit this deadly mess if we
22 don't start fixing it now. I want to do the
23 right thing, and I want a public utility
24 that helps me do it. Instead of
25 discouraging rooftop solar, I would like to

1 see it expanded to include more people in
2 multi-unit housing and incentives for
3 low-income ratepayers and renters. I know
4 that rooftop solar alone cannot solve the
5 climate crisis, but it must be a viable part
6 of the mix.

7 "Let's just be clear, the changes you
8 are proposing will kill rooftop solar. They
9 will certainly cause more GHGs to be
10 released, in direct opposition to your
11 Carbon Free 2030 initiative. They will
12 incent people to purchase dirty
13 GHG-releasing gas and diesel generators to
14 protect against outages. They are not in
15 keeping with your mission as a public
16 utility tasked with acting in the public
17 interest and necessity.

18 "You must reverse course and return
19 to providing the incentives to grow rooftop
20 solar and storage in our region. Your
21 ratepayers and the young people of this
22 region are watching. Do the right thing."

23 DIGITIZED VOICE: Comment number four:

24 "Rick Codina. Comments on SMUD's
25 proposed Critical Peak Pricing: I strongly

1 support the intent of the Critical Peak
2 Pricing, CPP, program to encourage the
3 installation of battery storage and other
4 future resources in SMUD's planned Virtual
5 Power Plant. My comments here apply to CPP
6 as a condition of SMUD's battery incentive
7 program.

8 "The current GM Report on Rates and
9 Regulations does not provide actual CPP
10 rates and otherwise offers only scant
11 information. Yet, batteries are such a big
12 investment that SMUD should post more
13 details on this new tariff to allow
14 prospective customers to evaluate the
15 financial benefits for investing in storage
16 and committing to the CPP program. The
17 tariff becomes effective next June, but the
18 pricing and conditions should be published
19 well in advance, by the end of this year,
20 for example. Here are some questions that
21 the CPP should be answering:

22 "What is the discounted non-peak
23 pricing? What are the discount prices for
24 mid-peak and off-peak time periods? Do they
25 apply to all non-peak hours during the

1 summer season, including weekend and
2 holidays? For solar customers, the details
3 are particularly important since discounted
4 off-peak prices will effectively lower
5 savings during solar self-consumption hours.

6 "What is the Critical Peak Pricing
7 rate? The original Smart Sacramento pilot
8 in 2011 balanced the off-peak discounts with
9 a very high CPP rate of 75 cents kWh as an
10 incentive to voluntarily curtail loads when
11 activated. The current proposal is for a
12 price adder during CPP-called events on top
13 of current TOD prices. Will this be a fixed
14 adder set annually or a per-event price?
15 Will the rate change each year? When the
16 CPP extends beyond the peak period, will the
17 adder be applied to baseline TOD or to the
18 discounted TOD mid- and off-peak pricing?
19 Does this also apply to export power to the
20 grid during called CPP events, or is the
21 adder on the current export compensation
22 rate?

23 "What are the terms for
24 participation? Will the battery discharge
25 be controlled by SMUD as a condition of

1 participation? How long will the commitment
2 be to the CPP program? The report says a
3 minimum of one year but implies a longer
4 period may be required.

5 "Can SMUD share cost-benefit
6 analysis? The report notes that the CPP
7 program will be financially neutral for SMUD
8 ratepayers. But can staff provide details
9 on the estimated potential savings and
10 payback for program participants? If SMUD
11 expects 30,000 battery participants to help
12 meet its Carbon Zero goals, it should
13 demonstrate the cost benefits for their
14 relatively large investment in batteries.
15 This is particularly true for existing solar
16 customers contemplating upgrading to solar
17 plus storage since participation in the CPP
18 program will entail losing their
19 grandfathered pricing status for the sale of
20 export generation."

21 DIGITIZED VOICE: Comment number five:

22 "John Briggs. My name is John
23 Briggs. I was a non-NEM representative on
24 the technical working group, Value of Solar
25 and Storage. I have remained engaged in the

1 process for the adoption of NEM 2.0 and
2 submit this email as my comments concerning
3 the adoption of the proposed changes to the
4 NEM program.

5 "There are common systemic issues all
6 utilities in California are facing from the
7 impact of NEM 1.0 on utility rates: (i)
8 There is a significant and growing
9 cross-subsidy paid by non-NEM customers to
10 NEM customers which has a disproportionate
11 impact on the low-to-moderate income
12 population. And, two, NEM customers do not
13 pay a fair share of the costs of the fixed
14 assets needed to deliver on-demand power,
15 shifting these costs to non-NEM customers.

16 "Indeed, those who can participate in
17 rooftop solar and storage and
18 electrification, such as electric cars, are
19 more affluent. NEM 1.0 effectively imposes
20 a regressive tax on those least able to
21 absorb it, a reverse Robin Hood situation.
22 It is only fair that a rate structure be
23 adopted which avoids a windfall to
24 better-off NEM customers.

25 "It is also important to remember

1 that NEM 1.0 was designed to provide a
2 generous financial incentive to promote the
3 nascent solar industry. Needless to say,
4 the solar industry has matured and is
5 vigorous. The goal has been reached.
6 Simply stated, there is no need to continue
7 to make grossly inflated energy purchases to
8 spur the solar industry. A fair value for
9 NEM energy deliveries was developed through
10 a painstaking and thorough analysis starting
11 with the working group and ending with the
12 E3 report after robust public participation.
13 That effort should form the bedrock for NEM
14 2.0 because it reflects a considered
15 analysis taking into consideration the
16 relevant factors identified by the
17 stakeholders.

18 "In my travels, I have also read a
19 criticism of NEM 2.0 as penalizing NEM
20 customers for generating their own power.
21 This argument ignores a -- two basic facts:
22 First, NEM customers are not off the grid.
23 When the sun goes down or does not shine on
24 overcast days, they flip the switch and the
25 lights turn on because of power supplied

1 through the grid. Conversely, the grid
2 takes delivery of their excess power. The
3 importance of basic grid infrastructure,
4 including reliable and dispatchable
5 generation, has been recently demonstrated
6 by the shortage of capacity during
7 hot days.

8 "Second, tested by market standards,
9 the rate at which NEM customers are
10 reimbursed for delivered power is not
11 competitive. Solar farms deliver power at 3
12 to 4 cents kwh versus about 12 cents for NEM
13 customers. If anyone is getting penalized,
14 it is non-NEM customers who are paying
15 dearly for NEM-generated electrons."

16 DIGITIZED VOICE: Comment number six:

17 "Megan Shumway. I think SMUD is
18 generally moving in the right direction, but
19 there are areas of deep concern to me. I
20 turn to you to express our opinions to the
21 SMUD CEO. Primarily, it is clear SMUD has
22 not taken the shortcomings of the E3 report
23 seriously. In addition, they have not
24 modified their view of rooftop solar owners
25 as rich people foisting off paying their

1 fair share of electric infrastructure on to
2 the poor. This attitude offends me deeply.
3 Short of sharing my SMUD bill and income tax
4 return, which is not anyone's business, I
5 will assure you I am not rich and can
6 not afford large donations of my funds to
7 any cause, including to SMUD to fund any
8 energy project.

9 "Let's be clear, SMUD charges me a
10 \$22.25 system infrastructure fixed charge
11 along with county tax and state surcharge
12 every month. And SMUD charges me for any
13 kilowatt I get from SMUD and even breaks it
14 down into time of day. SMUD knows how much
15 energy I produce with my solar system that
16 is saving SMUD kilowatts for use elsewhere,
17 just like anyone else who conserves energy.
18 Now there is a proposal to increase the Net
19 Energy Metering that would make it even less
20 likely people will want to invest in rooftop
21 solar or even buy home with rooftop solar.

22 "By state law, new homes must have
23 solar or SMUD solar shares, which is less
24 economical for the homeowner. SMUD
25 apparently wants to ensure they are the only

1 economical energy producers by snuffing
2 individual consumers' ability to utilize the
3 sun that hits their rooftop to provide their
4 energy needs. This is a self-serving policy
5 that is not taking into consideration the
6 consequences of their action. We need solar
7 on every rooftop that can support it if we a
8 [sic] to get off our addiction to fossil
9 fuel.

10 "If a recent survey is any indication
11 of participation in the emergency battery
12 use slash Virtual Power plant, I am severely
13 disappointed. First of all, SMUD asked a
14 question without giving adequate information
15 to answer the question, if I would
16 participate. No information about if this
17 was behind-my-meter calculations if I was in
18 control of the battery discharge, and would
19 it apply to a one-time or possibly multiple
20 times I would be required to share my
21 storage.

22 "In addition, they seem to want to
23 charge me a large fee for my peak hours and
24 in return give me a tiny discount -- for how
25 long or how often is not clear -- on my

1 off-peak hours as compensation, which in no
2 way comes even close to making up for the
3 charge, for the privilege of sharing my
4 power in an emergency situation.

5 "Of course, this was for emergency
6 use, which SMUD says I would be notified in
7 advance, most likely 24 hours in advance,
8 but possibly only a few hours in advance.
9 It would probably be only once a year, but
10 it could be multiple times. If this notice
11 is by email, I could miss it entirely if it
12 was after I checked my email, which is once
13 a day, if that."

14 DIGITIZED VOICE: Comment number seven:

15 "Tom Wiechert. As part of the
16 proposal, SMUD is stating that the new rate
17 would apply to excess energy created.

18 "Would SMUD please define the term
19 "excess energy" under the new proposal?

20 "Can we assume that this refers to
21 energy produced in excess of actual
22 consumption and not the solar generated for
23 consumption?"

24 DIGITIZED VOICE: Comment number eight:

25 "Jane Lamborn. Dear SMUD Board of

1 Directors and General Manager Paul Lau, as a
2 homeowner with rooftop solar, I have seen
3 the benefits and savings available with
4 solar-powered systems. And, as a resident
5 of California, I have seen the devastation
6 and damage caused by drought, fires, and
7 floods that have been exacerbated by climate
8 change. Using solar power to reduce our
9 reliance on fossil fuels is critical to
10 mitigating this harm.

11 "SMUD's commitment to reducing
12 greenhouse gas emissions, as expressed in
13 advertisements and statements on its web
14 page, reads well, but it is contradicted by
15 the pending proposals to reduce the credit
16 that solar users receive for sharing their
17 extra energy and to force existing solar
18 users onto the lower solar credit tier if
19 they add a battery to their system. Just
20 when SMUD should be working to expand the
21 use of solar power and make it more
22 available to more people, it is proposing to
23 make it more expensive for anyone who adds a
24 battery or more solar panels or who is a new
25 homeowner.

1 "What SMUD should be proposing is to
2 make solar energy available to more people,
3 such as residents of multi-tenant buildings,
4 and to provide subsidies for low-income
5 customers. This would help these customers
6 reduce their energy bills and help protect
7 them from rising energy costs and power
8 outages that could occur.

9 "Rolling back the successful net
10 metering program makes energy more expensive
11 for everyone and takes us away from the goal
12 of reducing GHG emissions. Making solar
13 power available to more homeowners and
14 businesses will take us forward to a more
15 equitable, energy-efficient system, and this
16 should be where SMUD wants to go. Thank
17 you. Jane Lamborn."

18 DIGITIZED VOICE: Comment number nine:

19 "Ed Smeloff. Greetings, SMUD Board
20 Members. The SMUD staff proposal has five
21 key elements. The multi-prong program
22 should be designed to work together to
23 create a transformative policy for
24 distributed energy at SMUD.

25 "Some of the new elements SMUD has

1 articulated require further elaboration.
2 Vote Solar strongly supports the development
3 of an optional Critical Peak Price rate.
4 The details of that rate still need to be
5 developed and should be done quickly and
6 transparently. Likewise, SMUD is proposing
7 a Virtual Net Energy Metering, VNEM, program
8 for multi-family dwellings in
9 under-resourced communities. Again, the
10 details of this program need further
11 elaboration. We urge SMUD to quickly
12 complete the VNEM program design so that the
13 program can begin in early 2022.

14 "Importantly, SMUD is proposing an
15 innovative Virtual Power Plant Program.
16 This program has a lot of potential to
17 address the need to meet the evening net
18 peak energy requirements. It is worth
19 noting that the Hawaii Electric Company is
20 already implementing the equivalent of
21 SMUD's battery incentive program to meet
22 critical needs. The Hawaii program provides
23 an incentive of \$4,350 for customers who
24 install storage paired with solar and commit
25 to making 5 kilowatts available daily for

1 serving peak system requirements.

2 "SMUD is setting a goal of 30,000
3 customers that will have paired systems by
4 2030. While Vote Solar appreciates SMUD
5 setting a target for customer engagement by
6 2030, however, we believe that the 30,000
7 customer participation in the VPP is not
8 ambitious enough given the climate emergency
9 and customer interest in energy resiliency.
10 We encourage SMUD to adopt a stretch goal of
11 enabling at least 90,000 customers to
12 install storage with solar over the next
13 decade. If SMUD were to achieve such an
14 ambitious target, it will clearly transform
15 the way energy is generated and delivered
16 for Sacramento and set an example for the
17 rest of California and beyond."

18 DIGITIZED VOICE: Comment number ten:

19 "Robin Durston. I oppose the rate
20 hike and support Mark Graham's argument.
21 The rates must be based on SMUD's reasonable
22 costs not on its budget wishes, according to
23 the California Court of Appeal. We should
24 have voter approval of rate hikes.

25 "The rates were just raised in 2019.

1 Is this a public utility, or are you trying
2 to make a profit for investors? You're more
3 concerned with the stock market than your
4 customers. We are in the middle of a
5 pandemic and a depression. Inflation is
6 rising every day. We have many low-income
7 people that cannot afford a rate increase.

8 "In response to your argument for
9 wildfire mitigation, how many customers live
10 in a forested location? I don't think many.

11 "Regarding solar rates, if you want
12 to have more people install solar, you must
13 provide an incentive. This increases the
14 amount of energy SMUD can provide;
15 otherwise, new customers will not install
16 solar.

17 "Also, if rates are raised, customers
18 will have no incentive to install
19 all-electric homes. Robin Durston."

20 SMUD GENERAL COUNSEL LEWIS: I believe
21 that's all of the written comments that we've
22 received. I don't know if we can --

23 BOARD PRESIDENT BUI-THOMPSON: Were you
24 able to get the one gentleman who needed to call in?

25 SMUD GENERAL COUNSEL LEWIS: Sway, were we

1 able to get ahold of Subhash? I know you were
2 reaching out to him.

3 SMUD STAFF JOSUE SWAY GARCIA: No, we were
4 not able to get a call from Subhash. I provided the
5 same option as earlier where he could give our staff
6 person a phone call, but we have not received one
7 yet.

8 SMUD GENERAL COUNSEL LEWIS: So that would
9 be the end of the public comment period for this
10 item.

11 BOARD PRESIDENT BUI-THOMPSON: Okay. So
12 we have exhausted all of that, and hopefully we got
13 to everybody who wanted to speak tonight.

14 Before we move on to see who else might be
15 waiting in the wings, are there any questions from
16 the directors about the comments? I know we can't
17 get too much in the back and forth. I know a lot of
18 things were said.

19 Do directors have questions per se? I
20 know that we will go through the discussion of the
21 various recommendations, but I wanted to provide a
22 time for questions before I close the public hearing
23 portion.

24 Just keep in mind you'll have your time to
25 discuss the various draft resolutions. This is just

1 the time to get clarifications or questions before
2 we close the public hearing part.

3 It looks like Director Sanborn.

4 SMUD BOARD DIRECTOR SANBORN: President
5 Bui-Thompson. I have two questions.

6 One is for Eric Poff. I think you had
7 mentioned we can change things quickly in reference
8 to the solar rate if we start to see a drop in
9 installations, that there would be an ability to
10 change quickly. What does "quickly" mean? How
11 fast, and what kind of changes were you proposing or
12 would you discuss?

13 SMUD STAFF POFF: I will probably ask Paul
14 to kind of chime in here with this, but that was a
15 comment in reference to our programs. And programs
16 are much different than rate design. It doesn't
17 require this formal process.

18 So the programs are around solar and
19 storage and storage incentives in the VNEM or
20 Virtual Solar Program. So if we did not see the
21 rates of adoptions that we're hoping to, that we're
22 forecasting to see, then we can make adjustments for
23 those programs.

24 Paul or Jennifer, would you like to add
25 anything to that?

1 SMUD BOARD DIRECTOR SANBORN: If somebody
2 can be a little more specific because I had --
3 timing is important to businesses, and waiting too
4 long for the shift could be problematic, so.

5 SMUD CEO LAU: Yes. So what it is is that
6 I can't specifically talk about the timing because I
7 don't want to forecast, to say, well, in three
8 months, you know, if nothing changes -- because a
9 lot of things could actually change in three months.

10 So what we plan to do is actually
11 monitoring to see what was happening in the industry
12 itself, what the adoption rate is, how it actually
13 has impacted, like, other folks who went through
14 this, like, TID and MID and actually Roseville to
15 see what are some of the things that we can do.

16 So I think what Eric said is right. We
17 can certainly adjust, you know, from incentives, you
18 know, how much we're actually offering for battery
19 incentives, how much is interconnection fees that we
20 have, and then, you know, if we need to adjust the
21 VNEM program, what the VNEM program needs to look
22 like.

23 SMUD BOARD DIRECTOR SANBORN: Okay.

24 So second question was -- quickly:

25 Does adding EV double the energy use? I

1 think Jeff Spies said that, and I hadn't heard that
2 before. Is that an accurate statement?

3 SMUD CEO LAU: Well, usually what we
4 looked at before, when we actually oversized to
5 110 percent, it usually accommodates like one EV and
6 any kind of stuff that you need to look at.

7 Now, if you need to add more than that, so
8 certainly our staff, you know, will work with them.
9 When they do the panel sizing, we take that into
10 consideration. So a lot of times if they already
11 bought one and have an intention of buying one,
12 we'll take into that consideration when we do the
13 sizing of it.

14 But right now, the 110 percent was one of
15 things that we looked and actually talked to the
16 CPUC. That's one of the things I think CALSSA
17 actually put forth as a good number. 110 percent is
18 a good number instead of the 100 percent that we had
19 before.

20 SMUD BOARD DIRECTOR SANBORN: It wouldn't
21 be an average to double?

22 SMUD CEO LAU: Well, usually what happens
23 when you charge an EV, we highly recommend you
24 charge it at night because it's actually the
25 cheapest, right? I mean, you're not charging it

1 during the day, you know, when solar is producing,
2 so depends. And the reason why I say "depends,"
3 because usually for a home, usually you would
4 actually do the charging at nighttime.

5 SMUD BOARD DIRECTOR SANBORN: I'm not sure
6 if that was my question. I was trying to get at the
7 total amount of energy usage.

8 SMUD CEO LAU: I don't know that off the
9 top of my head. Maybe Jennifer does.

10 SMUD BOARD DIRECTOR SANBORN: Okay. Thank
11 you.

12 BOARD PRESIDENT BUI-THOMPSON: Okay. I
13 believe Director Rose's hand was up next.

14 But, Jennifer, did you have your hand up?
15 Did you want to say something before Director Rose
16 went on?

17 SMUD CFO DAVIDSON: I also want to make
18 sure -- I'm not an electrical engineer, but I
19 just -- just think about people who have an electric
20 vehicle, think about how much your monthly
21 electricity bill is, and think about what it costs
22 to charge your home. Right then and there you could
23 see it probably -- your electricity bill didn't
24 double when you bought an electric vehicle. So that
25 was the thought that went through my head, because I

1 have an electric vehicle, and I'm thinking: Uh, my
2 SMUD bill didn't double. So I'm not quite sure I
3 agree with that.

4 SMUD BOARD DIRECTOR SANBORN: That's why I
5 wanted to get it on the record. I have one too, and
6 mine didn't double either. So I just wanted to make
7 sure that we could -- because I just want to make
8 sure everybody gets the facts.

9 SMUD CFO DAVIDSON: Yes.

10 SMUD BOARD DIRECTOR SANBORN: So that was
11 my understanding. So thank you.

12 BOARD PRESIDENT BUI-THOMPSON: Okay.
13 Director Rose.

14 SMUD BOARD DIRECTOR ROSE: Yes, thank you.

15 I guess I will respond and make that
16 clear, real quick. I mean, it depends on how many
17 miles -- how many miles a day you're driving, right,
18 and how much of that you're going to charge at home.
19 So if you did 40 miles a day, you drove a Tesla
20 which maybe gets three miles per kilowatt hour,
21 that's like 13 kilowatt hours per day times 20 or 30
22 days a month. I mean, that's 3- or 400 kilowatt
23 hours. So you can ballpark it pretty easy and do
24 the MPG conversion as well.

25 I had typed questions to some of the

1 comments so -- I misplaced it.

2 One of them was that we heard a comment
3 that the person was concerned about moving from the
4 4:00 to 7:00 -- this is tricky, 4:00 to 7:00
5 time-of-use period to a 5:00 to 8:00 time-of-use
6 period, and they were -- their comment was very
7 unhappy about that, and I didn't understand that
8 context of when -- what exactly was happening.

9 I've read the language, but are we
10 requiring the current solar customers at 4:00 to
11 7:00 to move to 5:00 to 8:00, or is that going to be
12 after, like, the 2031 time frame?

13 SMUD CFO DAVIDSON: I'm happy to take that
14 if you would like. I don't know if people could see
15 my raised hand, so I'm just going to jump in here.
16 This is Jennifer Davidson.

17 Yes, that was something that was put in
18 place back in -- when we put in the time-of-day
19 rates and that existing solar -- remember we were
20 thinking about 4:00 to 7:00, and then we went to
21 5:00 to 8:00.

22 And so at that point, when we put the
23 time-of-day rates in, we said: But the default will
24 be 5:00 to 8:00 for everybody but not solar
25 customers but if non-solar -- sorry. And if solar

1 customers want to stay on the 4:00 to 7:00, we will
2 let them stay on that until 2023. And so that
3 reflects a prior board decision.

4 SMUD BOARD DIRECTOR ROSE: So that was
5 something we already decided that would -- we would
6 switch them from 4:00 to 7:00 so the current 5:00 to
7 8:00, which much better matches the grid -- the
8 realities of the electric grid.

9 SMUD CFO DAVIDSON: That is correct. And
10 that was decided by the board back when they
11 approved the time of day.

12 SMUD BOARD DIRECTOR ROSE: Okay. And then
13 the other question -- I wanted to just clarify the
14 comment.

15 There was concern that because we passed
16 the 2030 carbon plan after we did the value -- E3
17 Value of Solar Study, that that study, there was
18 potentially something incorrect with it. I was
19 trying to figure out what that might be. Would you
20 have some thoughts or comments on what might change
21 if we were to redo the study today?

22 SMUD CFO DAVIDSON: I actually think that,
23 if anything, the value might actually go down
24 quicker because, remember, the 7.4 cents -- there
25 was a range. It was between 3 and 7, and that 7 was

1 for displacing thermal energy. And so by 2030, if
2 there's no thermal energy to displace and all of the
3 costs of the carbon attributes, then the value of
4 the solar actually then will decrease. So I
5 actually think the zero carbon plan potentially has
6 the ability to move us closer to the value of the
7 3 cents versus the 7 cents.

8 SMUD BOARD DIRECTOR ROSE: Thank you.

9 BOARD PRESIDENT BUI-THOMPSON: Okay. I
10 believe Director Tamayo has the next question.

11 SMUD BOARD DIRECTOR TAMAYO: Yes. Thank
12 you, President Bui-Thompson.

13 Paul or -- well, anybody on staff, I was
14 wondering what is the reason for the limitation on
15 the system size?

16 SMUD CFO DAVIDSON: I can go ahead and
17 take that. I think that part of it is that we
18 really want to make sure that customers are not
19 using the grid as a battery. Because that means
20 that if the generation is -- if you're having this
21 flooding of the solar onto the grid, that is
22 actually what causes some of that stress, that real
23 ramping in the late afternoon. And so part of it is
24 a signal that we really would like to have customers
25 be able to self-consume what they generate.

1 And that's also a real financial benefit
2 for customers as well. This is a way for them to
3 really be able to maximize that self-consumption.
4 Our modeling shows that they can actually have
5 85 percent self-consumption, so that's how they can
6 really get that value and actually be -- get full
7 retail value for that 85 percent. And so it's
8 beneficial for the grid, beneficial for operation,
9 beneficial for all customers, and it also really
10 helps maximize the customer's investment as well.

11 SMUD BOARD DIRECTOR TAMAYO: So when you
12 said not wanting customers to be using the grid as a
13 battery, you're talking about sort of racking up
14 excessive credits; is that what you mean?

15 SMUD CFO DAVIDSON: Well, I think it's
16 even just ideally you want the solar energy to be
17 used at that point of generation.

18 SMUD BOARD DIRECTOR TAMAYO: Yes, but I
19 don't understand what you mean by "using the grid as
20 a battery." Could you explain what you mean by
21 that.

22 SMUD CFO DAVIDSON: Well, I think that
23 what happens is when you've got this -- using the
24 grid as a battery, what that's doing is it's pushing
25 a lot of energy onto the grid, and then that means

1 that you have a surplus.

2 When you have a surplus, that is where the
3 grid now has to deal with all of that surplus of
4 energy, but then the sun goes down and all of a
5 sudden you've got the scarcity, and that causes that
6 so that all of the systems have to ramp. And that's
7 where sometimes California is having problems after
8 the sun goes down. So it's all about having a
9 system size that's compatible with the overall grid
10 to help California and help SMUD achieve our carbon
11 goals.

12 SMUD BOARD DIRECTOR TAMAYO: Okay.

13 And then as far as the establishment of
14 interconnection fees, I understand that we did a
15 pretty careful study of what our actual costs were,
16 but they're very different from other utilities
17 around the state. Did you look into what the
18 nature -- or what the cause of what that disparity
19 is?

20 SMUD CFO DAVIDSON: We did actually call
21 around because we were surprised. And I'll be
22 honest, what some of them said is that: Yeah,
23 actually we're not collecting our true costs. This
24 was a cost that we set a while ago, and it's not
25 reflective of our actual costs.

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1 So I think it's more a matter of our study
2 has been done recently, and their costs -- fees were
3 determined a while ago when costs were lower.

4 SMUD BOARD DIRECTOR TAMAYO: Okay. Thank
5 you.

6 BOARD PRESIDENT BUI-THOMPSON: Does
7 anybody else have any questions based on the public
8 comment?

9 Okay. I believe we have Subhash on the
10 phone line. So, Laura, do you mind getting him on
11 and giving him the three minutes.

12 SMUD GENERAL COUNSEL LEWIS: Yes. I
13 think, Sway, if you have that ready to go.

14 SMUD STAFF JOSUE SWAY GARCIA: Yes, I have
15 Subhash (inaudible) in place.

16 PUBLIC MEMBER SUBHASH KALE: Hello. Can
17 you all hear me?

18 SMUD GENERAL COUNSEL LEWIS: Yes.

19 PUBLIC MEMBER SUBHASH KALE: Thank you for
20 being patient and -- (inaudible) me out. I'm
21 calling from Vedante Society of Sacramento. I'm on
22 the board of directors there. And we are thinking
23 about installing solar around this summer, but our
24 installation is like 750 feet away, the back of our
25 property. And there's an electrical meter there,

1 and we want to connect to that meter, but our
2 account executive -- (inaudible) we were told that
3 we cannot do that.

4 So I'm requesting you guys to see if you
5 can give us special permission to do the net energy
6 metering -- (inaudible) so we can connect to this
7 back meter and be able to install solar; otherwise,
8 we have to take a line from the ground, and there
9 are cypress trees, which damages the roots of the
10 trees so we want to avoid that.

11 So we do want to go solar because of the,
12 you know, climate considerations, but, you know, we
13 have this as a big impediment is number one.

14 Number two, from what I'm understanding
15 from what I heard also, that you're recommending
16 having battery storage if we are going to go solar.
17 And we are -- (inaudible) that it's going to be
18 really expensive -- expensive to have batteries so
19 we're ruling that out.

20 Do I understand correctly that you regard
21 the battery storage as not going to be as helpful?
22 I can follow up later if somebody wants to talk to
23 me in more detail, and my contact information is
24 there in my email that I had sent. But this
25 considered net energy metering -- (inaudible)

1 because other energy -- (inaudible) and I don't know
2 what SMUD -- (inaudible). So please consider that
3 so that we can go solar. Thank you.

4 BOARD PRESIDENT BUI-THOMPSON: Great.
5 Thank you. I'm glad we had the opportunity to hear
6 your comments.

7 Okay. One last time: Any more questions
8 from the directors before we close the public
9 hearing?

10 So our -- next up is our discussion and
11 our discussion calendar. So Item Number 3 is to
12 introduce draft rate solutions to make changes to
13 SMUD'S rates, rules, and regulations as proposed by
14 our CEO and General Manager's report. That's Volume
15 1 and 1 [sic] from June 17th, and then 3(b). So
16 that was 3(a). And then 3(b), which is CEO and
17 General Manager's report on the Open Access
18 Transmission Tariff, Volume 1, also from June 17th.

19 So updates have been made to the
20 resolutions provided for 3(a), and these updates
21 have also been posted on the SMUD's meeting page and
22 has been distributed.

23 So this is the time to discuss -- I
24 believe we discuss first, right, or do we do more
25 public comment, Laura?

1 SMUD GENERAL COUNSEL LEWIS: Yes. Just
2 for clarification, President Bui-Thompson, have we
3 closed the public hearing?

4 BOARD PRESIDENT BUI-THOMPSON: Well,
5 that's one of my questions. So I know that board
6 members usually like to just generally comment on
7 the -- you know, what we've heard, but I also
8 thought since we were discussing, that we could
9 group them all together because we had several
10 discussion points.

11 But I'll defer to you as to when you think
12 the best time is to provide our general comments on
13 what all we heard now or lump that in both
14 discussing of the rate resolutions, right, which is
15 also reacting to the public. I'm just trying to
16 kill several birds with one stone, but I know that
17 there are procedural processes that we may have to
18 follow.

19 SMUD GENERAL COUNSEL LEWIS: Yes.

20 Actually, before we close the public
21 hearing, one of my staff is able to provide some
22 response to Mr. Uhler's alternative proposal. If we
23 could have just a moment to do that to get that on
24 the record, because Andrew Meditz is prepared to do
25 that. Then I think we can close the hearing and

1 then move to the discussion calendar, which is
2 discussing the draft rate resolution, and the board
3 have opportunities to provide additional comments
4 then.

5 BOARD PRESIDENT BUI-THOMPSON: That's what
6 I thought besides having us just comment now and
7 then comment again, because we have the discussion.
8 So that's why I'm just hoping to lump just our board
9 members' discussions seeing that it's 9:00 because I
10 know each one of us will want to respond to what we
11 heard this evening and also respond to the proposal.

12 So as long as we're allowed to do that in
13 the same discussion point, then, yes, I'll move
14 forward with letting Andrew speak and then ask the
15 board members if we can kind of combine both our
16 reactions to what we heard and then just general
17 reactions to the rate resolution.

18 Is that acceptable, Laura?

19 SMUD GENERAL COUNSEL LEWIS: Yes.

20 BOARD PRESIDENT BUI-THOMPSON: Okay. So
21 that we don't have to do it twice, basically.

22 Okay. So if that's okay with everybody, I
23 would like to combine your general comments into one
24 section. Is that good with everybody, unless you
25 want two bites at the apple? Okay. So we'll have

1 one bite at the apple in a little bit.

2 So, Andrew, do you mind responding to
3 Mr. Uhler's draft rate proposal?

4 SMUD COUNSEL MEDITZ: Sure, yeah.

5 Just quickly, Mr. Uhler proposed -- is
6 asking the board to consider an alternative
7 recommendation that SMUD purchase RECs that are
8 generated by rooftop solar.

9 And so our solar-and-storage rate does not
10 propose to purchase RECs, the customers' fee for
11 RECs. And there's a process to register renewable
12 generation with the CEC. And our solar-and-storage
13 rate, similar to our NEM -- NEM 1 tariff, simply
14 requires that the renewable resource be eligible for
15 certification by the CEC. It doesn't require the
16 system be actually registered and permitted for
17 that. And so our solar-and-storage rate has a
18 similar proposal as what's in our current NEM 1
19 tariff.

20 BOARD PRESIDENT BUI-THOMPSON: Okay,
21 great. I appreciate that.

22 So then are we good to close the hearing
23 portion and move on to discussing the resolutions,
24 Laura?

25 SMUD GENERAL COUNSEL LEWIS: Yes.

1 SMUD BOARD DIRECTOR KERTH: Do you need a
2 motion to close the public hearing?

3 SMUD GENERAL COUNSEL LEWIS: No.

4 BOARD PRESIDENT BUI-THOMPSON: It
5 doesn't -- (inaudible) that I do.

6 SMUD GENERAL COUNSEL LEWIS: No, we don't.

7 SMUD BOARD DIRECTOR ROSE: Laura, can I
8 ask -- sorry. I saw one of the public comments that
9 we received was saying that we should do an EIR
10 through CEQA. Would you have a response to that?
11 It seems like it's something we've never done
12 before.

13 SMUD GENERAL COUNSEL LEWIS: Yes. I am
14 happy to respond to that.

15 There is -- California law provides an
16 exemption for CEQA to the extent that the board is
17 adopting rates that recover our operating expenses
18 and other capital expenses and other financial
19 costs. And as a result, as noted in our
20 environmental analysis that's contained in the
21 General Manager's report, there is no requirement
22 to. This is exempt from CEQA, and that is included
23 in the CEO and GM report.

24 SMUD BOARD DIRECTOR ROSE: Perfect.

25 Director Kerth, I think you were speaking,

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1 but.

2 SMUD BOARD DIRECTOR KERTH: Well, I was
3 asking do we need a motion to close the public
4 hearing or not.

5 BOARD PRESIDENT BUI-THOMPSON: It doesn't
6 appear that we do.

7 SMUD GENERAL COUNSEL LEWIS: No.

8 (Public hearing concluded at 9:12 p.m.)

9 (Further proceedings held, not transcribed.)

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REPORTER'S CERTIFICATE

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I, CHERYL L. KYLE, a Certified Shorthand Reporter for the State of California, duly commissioned and a disinterested person, certify:

That the foregoing deposition pages 1 through 184 was taken remotely before me at the time and place herein set forth;

That all audible statements of all parties made at the time of the proceeding were recorded stenographically by me to the best of my ability and thereafter transcribed into typewriting;

That the foregoing transcript is a record of all audible statements of all parties made at the time of the proceeding.

IN WITNESS WHEREOF, I subscribe my name on this 7th day of September, 2021.



Cheryl L. Kyle, CSR No. 7014
Certified Shorthand Reporter

Ref. No. 21204

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Exhibit to Agenda Item #2

PUBLIC RATE HEARING

Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report"); and the Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report").

Special Board of Directors Meeting

Tuesday, August 31, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

Agenda

- Rate process overview
- SMUD's approach – transformational leadership
- Recommended rate changes
 - Small rate increases in 2022 and 2023
 - New Solar and Storage Rate
 - Optional Critical Peak Pricing rate
 - Miscellaneous Rate Changes
- Flexible programs that support the proposed rate changes and zero carbon goal. Can be quickly adapted as market conditions change.
- Public outreach
- Q&A

SMUD's approach: transformational leadership

- Comprehensive approach to minimize rate increases and maximize reliability and environmental benefits for all.
 - Delivers on commitment to keep any rate increases within the rate of inflation through 2030.
- Builds on SMUD's 20+ year support for solar industry.
- Balanced approach to support all technologies and customer investments/choice needed to eliminate carbon emissions.
- Balance of rates and programs: flexible, collaborative and industry-leading approach to transition from solar only to solar and storage, while considering all customers, including low-income and non-solar customers.

2021 Rate Process

May 18

Board Committee Meeting @ 5:30 p.m.
Introduction to the Rate Recommendations & overview of the Solar and Storage Rate

Public outreach process contacts:

- 50+ community organizations
- 1,200+ community & business leaders
- 55 local elected officials
- 300+ community & business partners

Aug. 31

- Public rates hearing @5:30 p.m. via Zoom
- Draft rates resolutions introduced

June 17

Released the CEO & GM Reports and Recommendations on Rates and Services & Open Access Transmission Tariff

July 8 & July 27

Hosted public rates workshops via Zoom

Sept. 16

Final decision on draft rate resolutions at SMUD Board meeting

EXTENSIVE PUBLIC OUTREACH THROUGHOUT

2+ years
collaboration w/
solar industry

May

June

July

August

Sept.

2022 and 2023 Rate Recommendations

Proposed changes to SMUD rates

Rate proposal	Rate increase & effective date	Customer groups impacted
2022 – 2023 rate increases	1.5% effective on 3/1/2022 2.0% effective on 1/1/2023	All customers
Solar and Storage Rate	Effective 1/1/2022	All solar and storage customers approved for interconnection on or after 1/1/2022
Optional Critical Peak Pricing Rate (CPP)	6/1/2022	Optional rate for residential customers 1. Up to 30,000 customers with a SMART thermostat 2. Solar + storage customers 3. Storage only customers
Other Rate Changes <ul style="list-style-type: none"> • Open Access Transmission Tariff (OATT) price update • Delay of commercial rate restructure and new rates nomenclature • Minor language changes to certain tariffs 		

Why are rate increases required?



Wildfire prevention & mitigation



Infrastructure improvements



Clean energy mandates



**Increased operating costs
(materials & labor)**

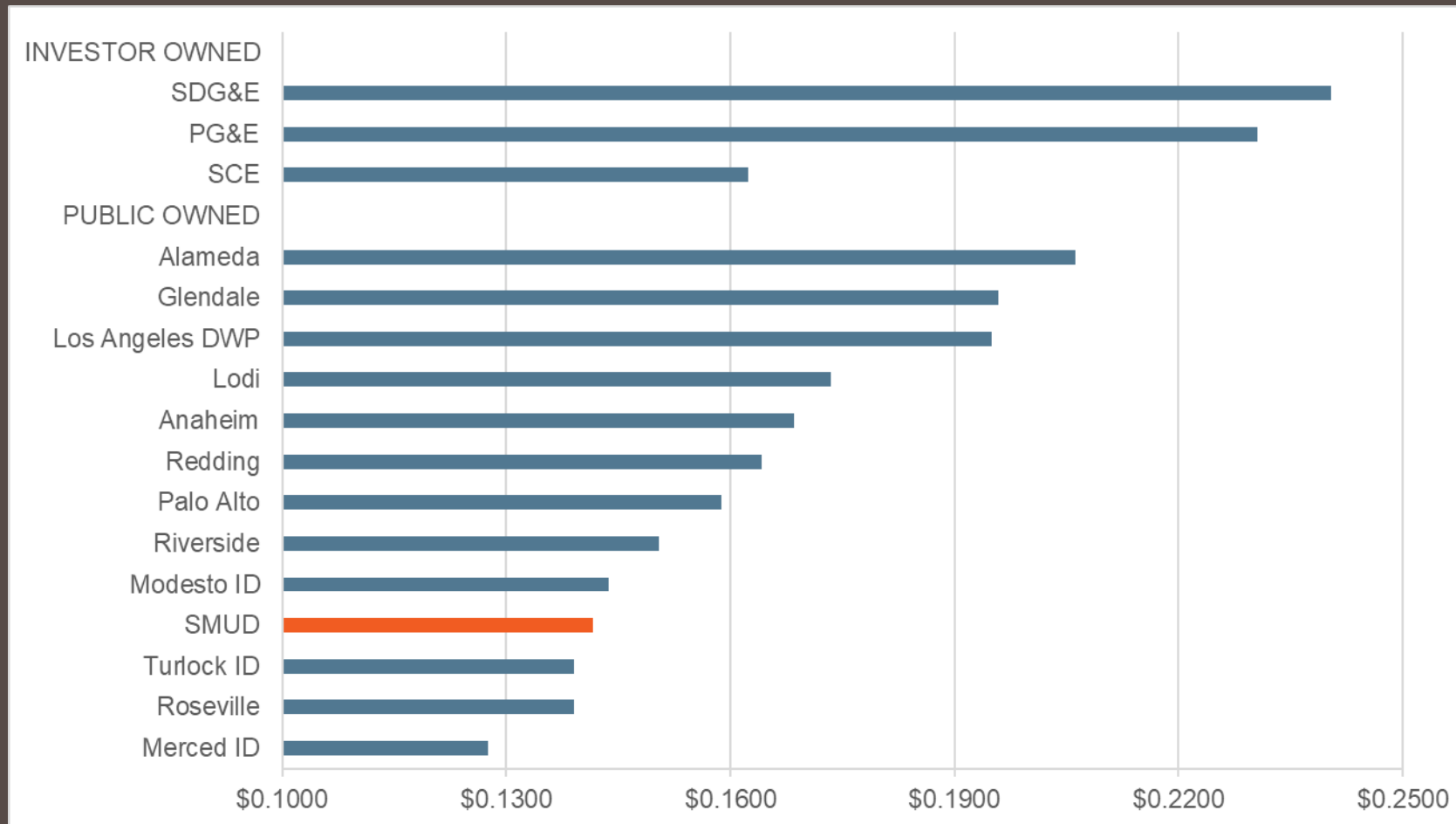
How will the proposed rate increases impact bills?

Sample Monthly Bill Impacts			
Size	Average Monthly Bill	1.5% Rate Impact in 2022	2.0% Rate Impact in 2023
Average residential at 750kWh usage	\$126.44	\$1.91	\$2.57
Small Commercial (20 – 299 kW)	\$2,921	\$44	\$59
Medium Commercial (500 – 999 kW)	\$25,906	\$389	\$526
Large Commercial (>1,000 kW)	\$91,623	\$1,374	\$1,860
Agriculture (Ag & Pumping)	\$351	\$5	\$7

Customers on our low-income Energy Assistance Program Rate (EAPR) & Medical Equipment Discount rate will see slightly different bill impacts than standard rate customers.

Amounts may reflect minor rounding differences

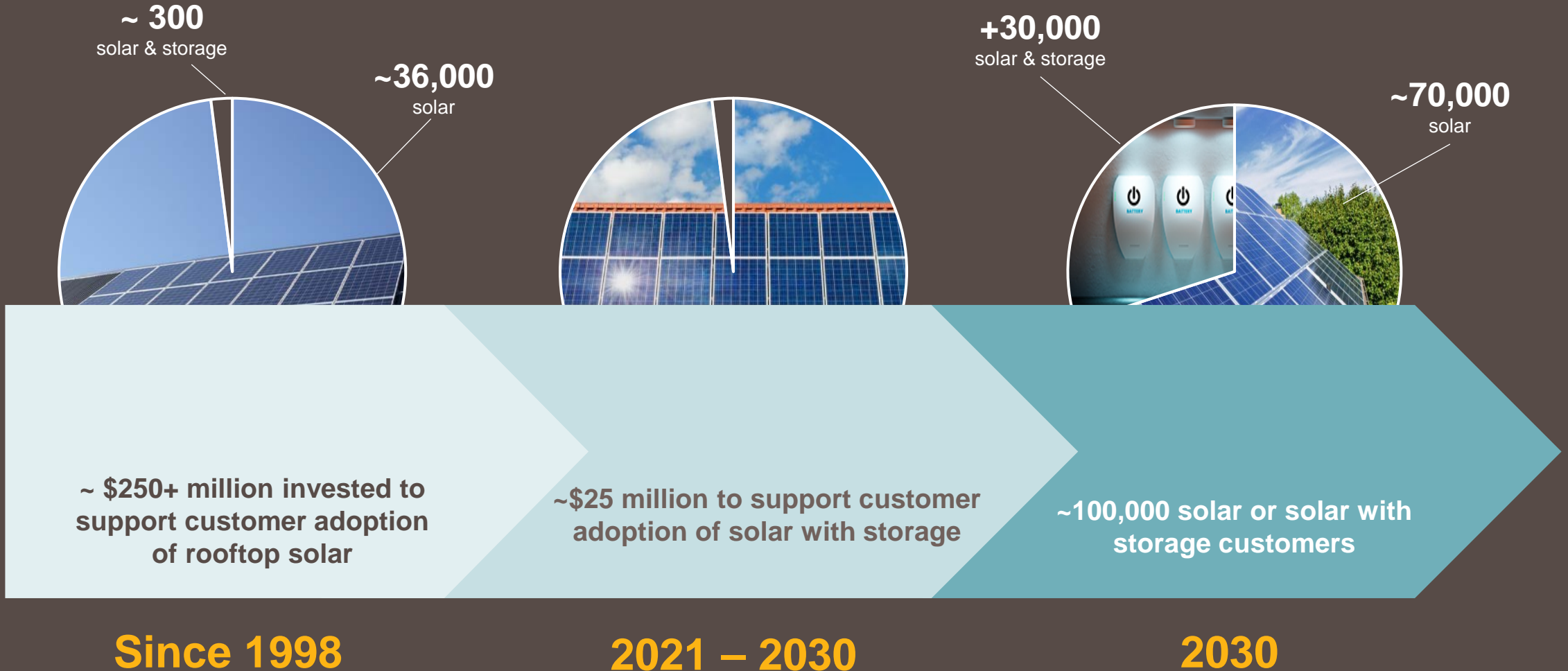
2020 rate comparison (\$/kWh)



Source: EIA 861M 2020 and self-reported annual data from the 2020 EIA 861 annual survey (system average rates)

Solar & Storage Rate and Recommendations

SMUD's support for market transformation



Why is the rate change needed?

Past

SMUD helped transform rooftop solar industry. ✓

Met 1998 NEM state mandate in 2017. ✓

Buying rooftop solar for 2x the proven value of solar. ✓

Cost shift for non-solar & under-resourced customers. ✓

Utilities across the country have or are changing NEM policy. CPUC holding NEM 3.0 proceedings ✓

Proposed rate

Helps solve variability of solar energy to maintain grid reliability. ✓

Proposal far more generous than others, including CPUC NEM 3.0 proceedings. ✓

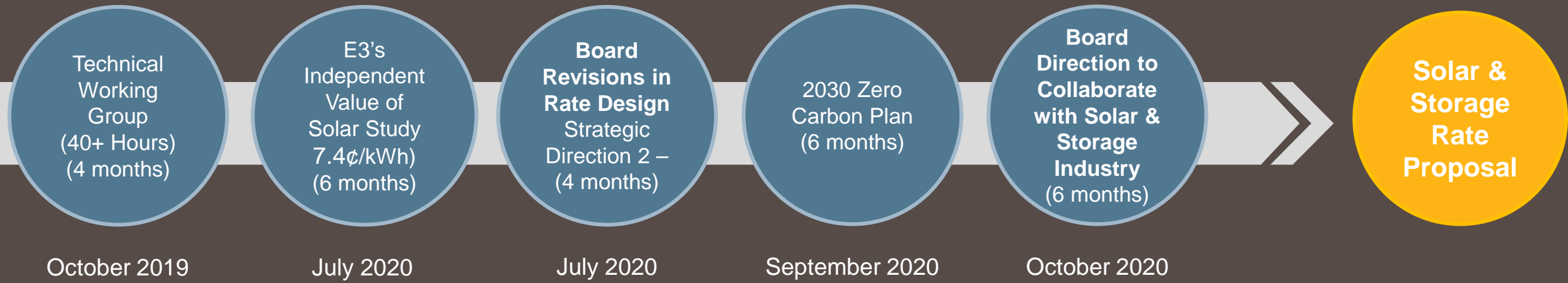
Transform to solar + storage, which is critical to reach zero carbon. ✓

Benefits for non-solar & under-resourced customers. ✓

SMUD will invest \$25 million to support battery storage adoption. ✓

Solar and Storage Rate proposal

Two-year collaborative rate design journey



For 2 years SMUD staff worked with customers, stakeholders, and the solar & storage industry to develop the Solar & Storage Rate.

Collaborative process to develop NEM 1.0 replacement

We invited the following organizations to collaborate with SMUD:

ACR Solar	Solar Rights Alliance
Aztec Solar	STEM
California Energy Storage Association (CESA)	Sunrun
California Solar & Storage Association (CalSSA)	Tesla
Solar Edge	Vote Solar

CEO invested hours	40+
--------------------------	------------

7 staff invested hours	630+
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SMUD's Compromised to Co-Design a Win/Win Rate

SMUD originally proposed:

- Grid Access Charge
- Solar sizing to 100% usage
- No storage incentives
- No Virtual Solar (VNEM)

Solar Industry Proposed:

- No Grid Access Charge
- No solar sizing limits
- No changes to self-consumption
- VNEM

Proposed collaborative and co-designed rate design:

- **No** Grid Access Charge
- Solar sizing to **110%** usage
- **\$25M storage incentives** & no change to self-consumption
- **New VNEM Program** for under resourced community members

Solar and Storage Rate proposal

All existing solar customers will continue to get the current NEM 1.0 rate and its benefits through 2030.

Rate proposal	Rate effective date	Customer groups impacted
Solar and Storage Rate	January 1, 2022	All Solar and Storage customers approved for interconnection on or after 1/1/2022

- Will accelerate storage adoption and transform the market from solar only to solar and storage.
- Will benefit all our customers and help SMUD achieve the 2030 zero carbon goal at a lower cost by partnering with our customers.
- Excess power can be sold back to SMUD for 7.4¢/kWh no matter the time-of-day or season.
- SMUD will reevaluate this value every 4 years (2026 & 2030) and the value will not be revised more than +/- 30%.
- Staff will implement an interconnection fee of \$475 for a majority of new residential solar applications effective January 1, 2022.

Excess power sold back to SMUD for 7.4 ¢/kWh

What makes up the 7.4¢/kWh?

- Recognizes value customers' energy provides to SMUD by reducing the need to generate power from a power plant.
- Avoids the following power generation related costs:
 - Carbon / greenhouse gases
 - Natural gas
 - Capacity (transmission, distribution & generation)



SMUD is recognizing rooftop customers' excess energy provides a **unique indirect benefit of avoiding disturbing** land for a utility size solar plant.

For more details, please see the Changes to Net Energy Metering section in the GM Report.

Rates for current solar customers

Concern 1

NEM 1.0 rate through 2030 for existing solar customers isn't long enough.

Response

Most all NEM 1.0 customer-owned systems will have systems paid back by 12/31/2030.

- 7.4¢/kWh reflects the value of the energy. All solar customers (current and future) will benefit from self consumption at retail rates.
- NEM 1.0 is financially unsustainable.
 - Without changes, 2021-2030 NEM subsidy is ~**\$381M**.
- With the proposed Solar and Storage Rate, non-solar customers would still pay an extra ~**\$91M** to extend NEM 1.0 through 2030 for the 36,000+ existing SMUD solar customers.
- Extending NEM 1.0 beyond 2030 would cost non-solar customers an additional ~**\$10M** per year of extension.
- NEM 1.0 has created a fairness and equity issue.
 - Of the ~**36,000** residential solar customers, about **2,000** are in under-resourced communities on EAPR. SMUD has funded 125 systems for low-income customers to date, with 15 more planned for 2021.
- Most all NEM 1.0 customer-owned systems will have systems paid back by 12/31/2030; even those who installed a system in late 2021 will have almost 95% of system paid back due to retail rate compensation.

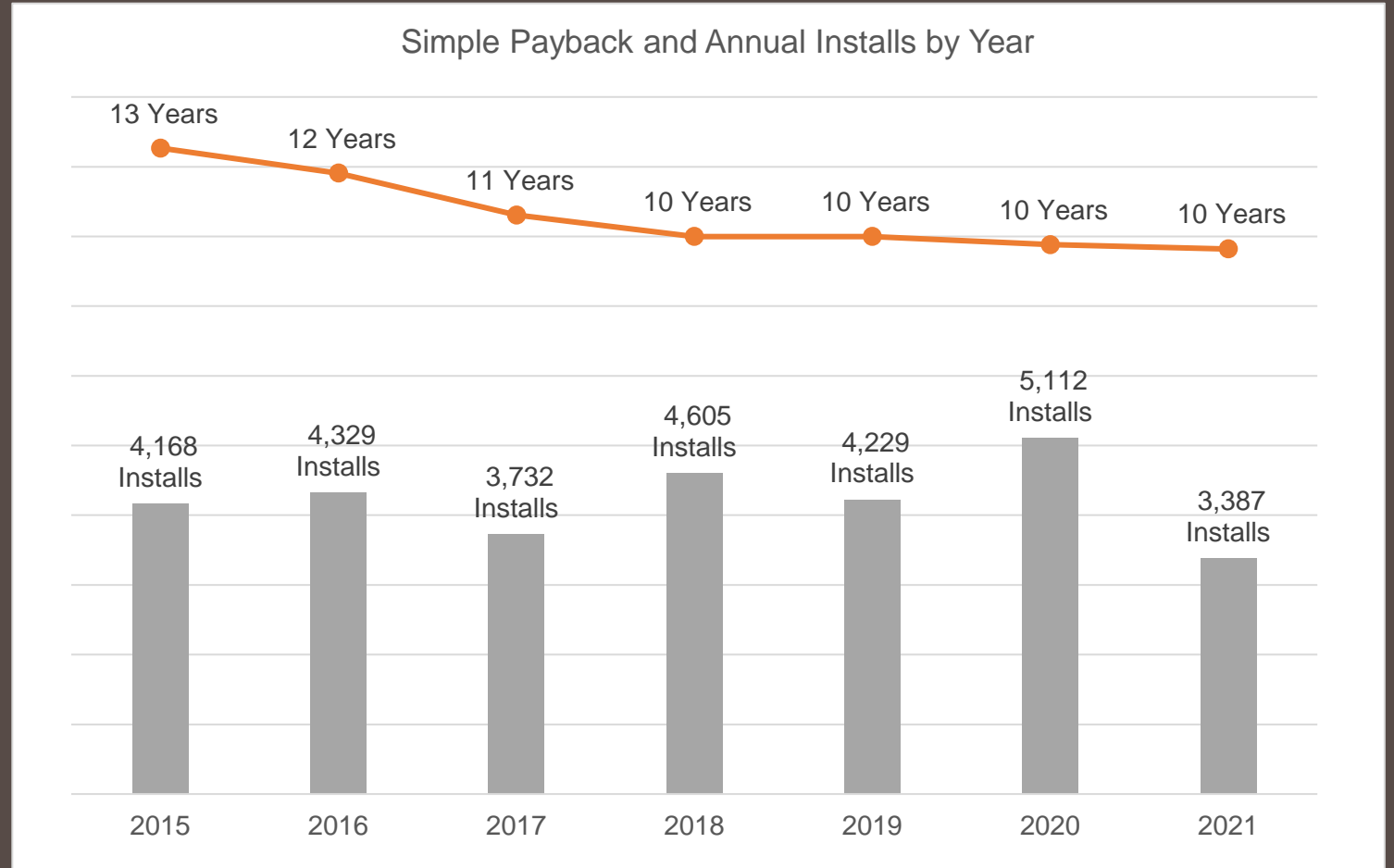
Payback period

Concern 2

Customers won't install solar with a longer payback period.

Response

Thousands of SMUD customers adopted solar with payback periods over 12 years and as solar prices continue to drop, staff anticipates payback periods will shorten.



2021 install values are through August 20, 2021.

New rate and impacts on solar installations

Concern 3

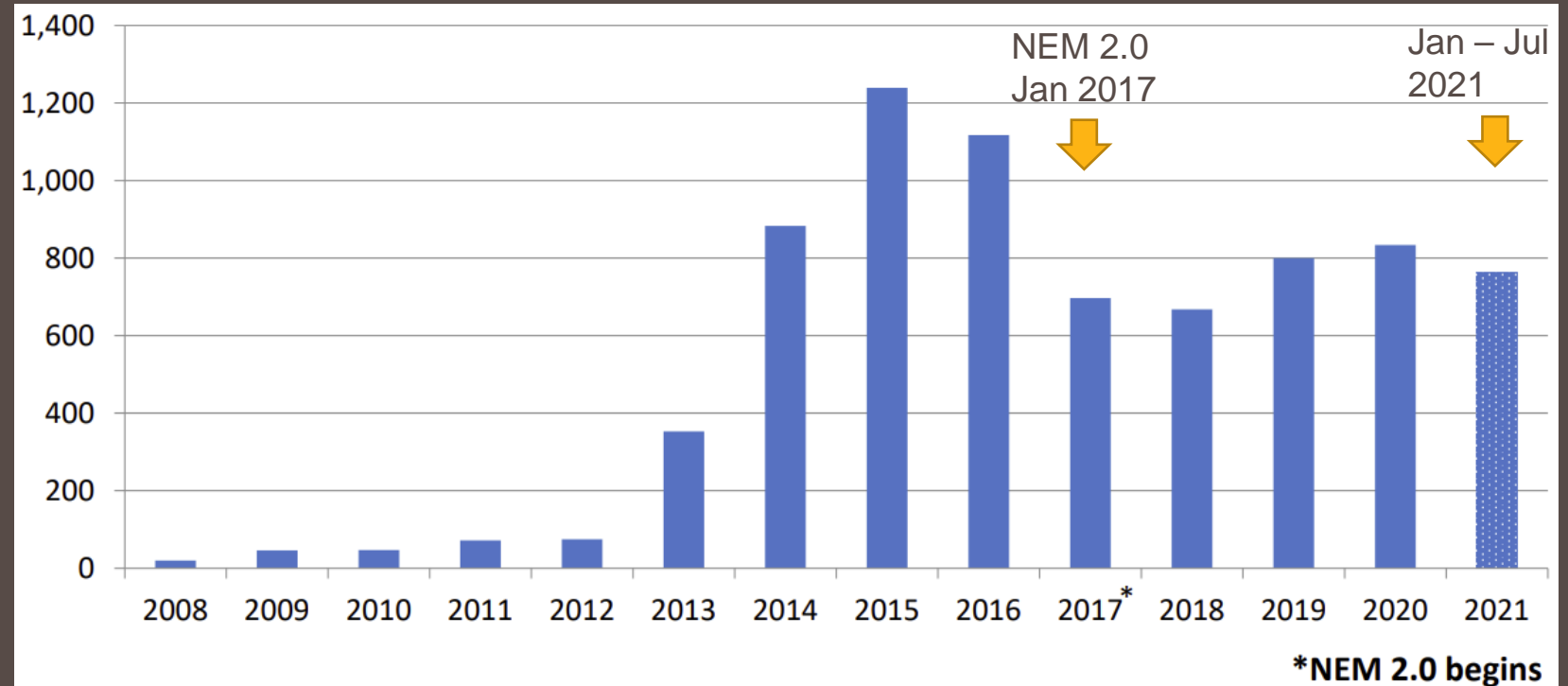
Reducing the rate SMUD pays customers for excess solar will harm the solar industry.

Response

Modesto implemented in 2017 and continues to see steady growth in solar installations.

Modesto Irrigation District

New rate for customers' excess solar energy is 7.6¢/kWh



Number of installations include retrofit and new construction solar. 2021 values are through July 2021.

SMUD will offer several other additional programs to encourage solar and storage adoption.

New rate and impacts on solar installations

Concern 3

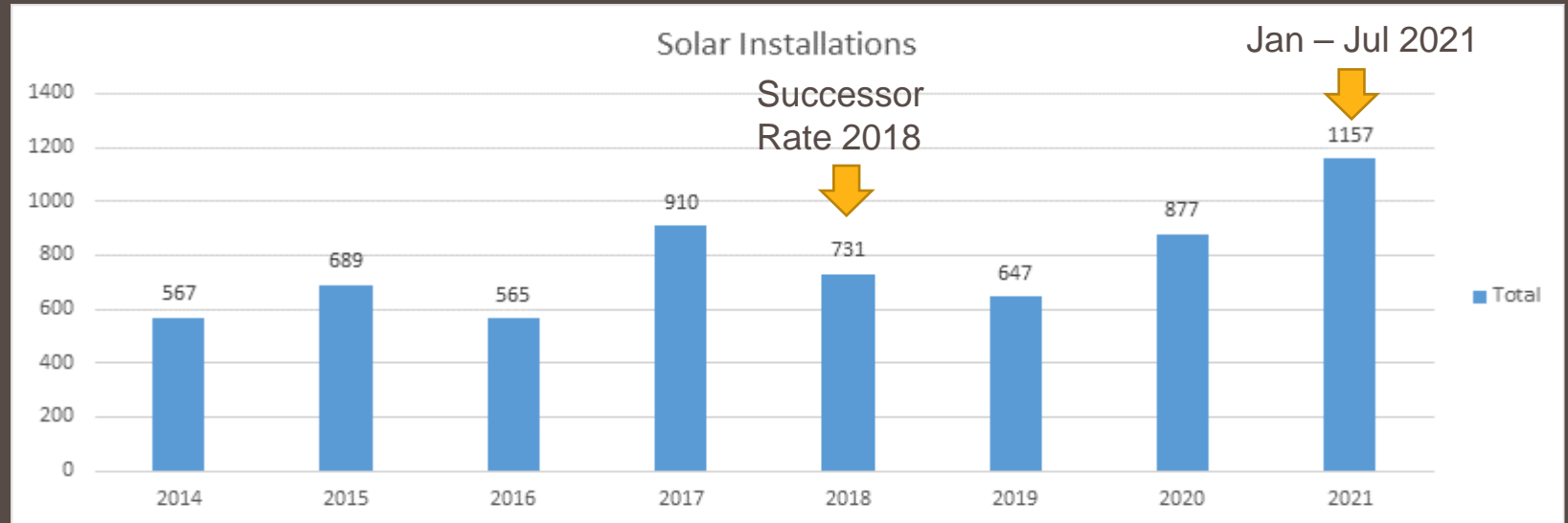
Reducing the rate SMUD pays customers for excess solar will harm the solar industry.

Response

Roseville implemented in 2018 and continues to see robust growth in solar installations.

Roseville Electric

New rate for customers' excess solar energy is 5.98¢/kWh



Number of installations include retrofit and new construction solar.

SMUD will offer several other additional programs to encourage solar and storage adoption.

Storage adoption

Concern 4

Battery storage is not ready for mass adoption.

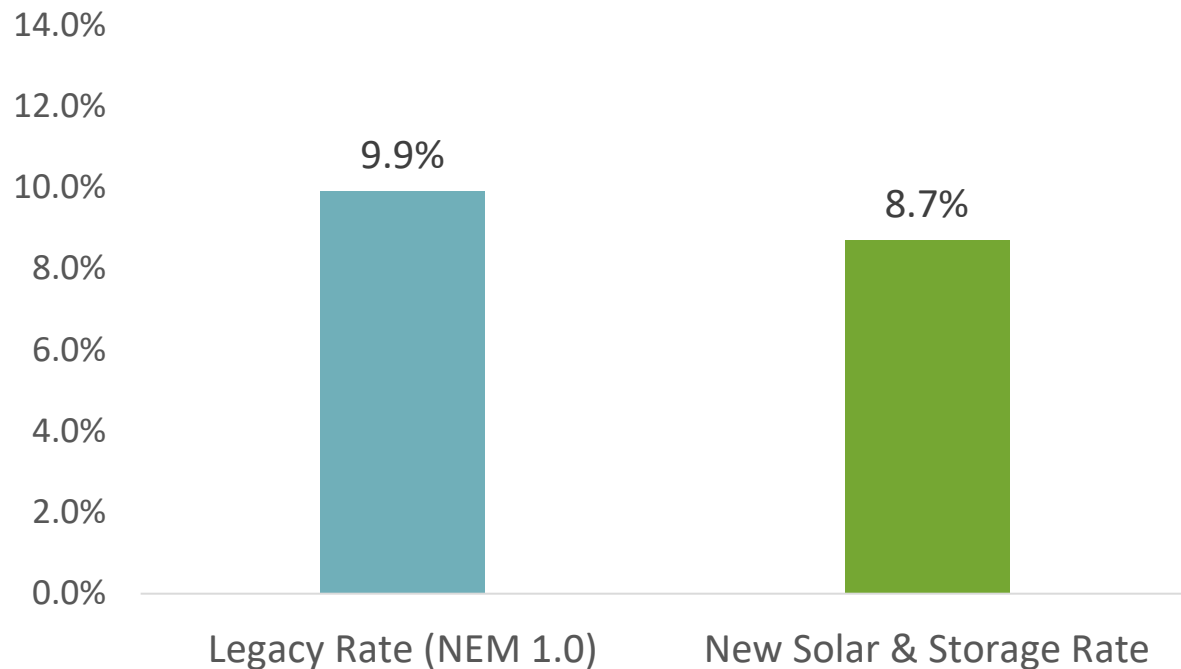
Response

Battery manufacturers are increasing production to keep up with growing global demand.

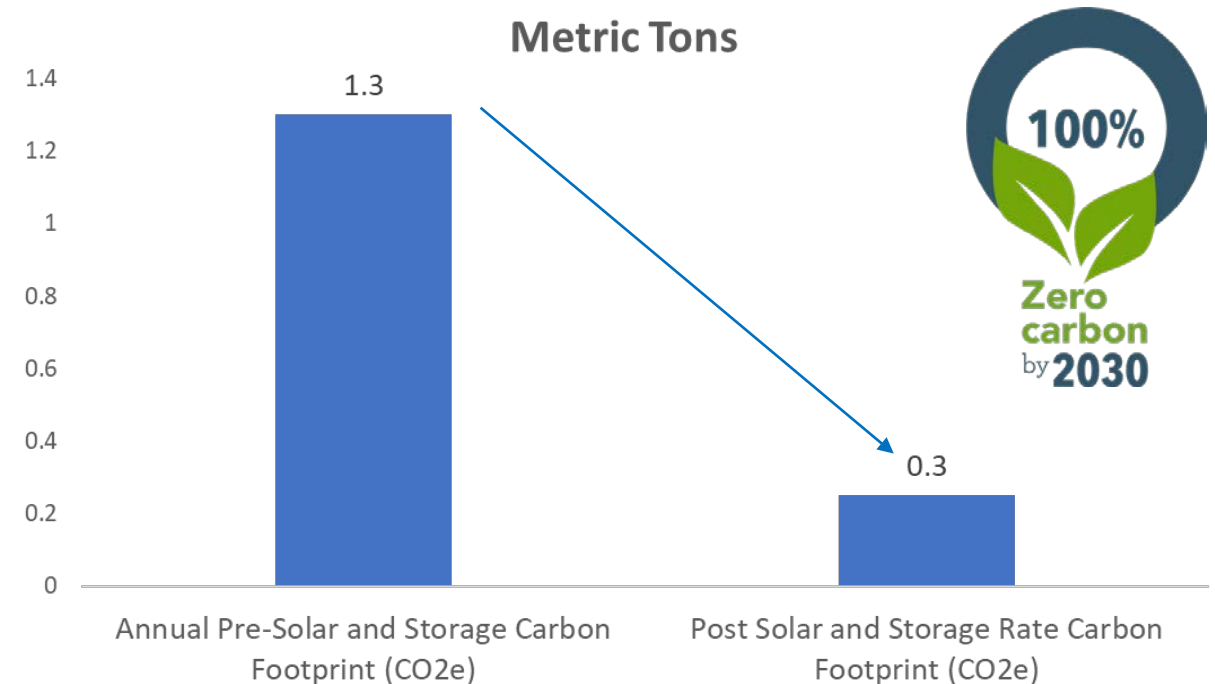
- Tesla has installed 200,000 storage units worldwide.
- Tesla noted on Q2 2021 earnings call that they are targeting production of **one million** Powerwalls per year by the end of 2022.
- Other battery manufacturers are also increasing storage production to keep up with global demand.

New rate provides a good payback and aligns with 2030 Zero Carbon goals

Internal Rate of Return Comparison (Illustrative Customer)



Decrease of 1 Metric Ton (CO₂e) per household for 30,000 customers would be equivalent to removing 7,500 gasoline cars off the road!



Support from experts and other stakeholders

“SMUD has a long history of supporting rooftop solar. As SMUD commences on its 2030 Zero Carbon Plan, SMUD needs to align its net metering policy to get the most out of solar and storage to decarbonize electricity, buildings, and transportation cost-effectively and affordably. To this end, SMUD has engaged in a transparent, stakeholder driven process and developed an innovative net metering tariff.

SMUD’s new tariff encourages coupling solar with storage so that customers can save money, enhance resiliency, and provide benefits to the grid. SMUD’s new net metering policy will also include options for virtual net metering which can bring distributed renewable energy to multi-tenant building customers. SMUD’s proposal generously doesn’t include any fixed charges for solar customers. The record in the California Public Utilities Commission’s on-going net metering proceeding (Rulemaking 20-08 020) indicates that some fixed charges for solar customers may be necessary to avoid undue rate increases for non-solar customers.”

- Mohit Chhabra, Senior Scientist, Climate and Clean Energy Program



Support from experts and other stakeholders

“SMUD’s proposed Solar and Storage Rate is a step in the right direction – it leverages price signals and incentives in a way that enables its goal of achieving a zero-carbon future.”



- Michael Colvin, California Energy Program Director, Environmental Defense Fund

Support from experts and other stakeholders

*"I would like to weigh in in favor of the SMUD 2021-22 Rate Proposal. I think it is an important first step in moving policy on Distributed Energy Resources to focus on compensating the value these resources bring to the grid. **As we battle the climate crisis, there is quite a lot of uncertainty about the value of different low-carbon resources in different locations on the grid. This proposal improves the alignment of financial incentives with the best available knowledge today about the value of DERs. In my view, it probably is still overly optimistic in valuing the contribution of DERs, and in the vision for the size of the DER role in the grid.** However, I do believe that DERs have an important role to play, and our knowledge of the most cost-effective low-carbon grid architecture continues to evolve. At this point in that evolution, the proposed changes are a prudent step in the right direction.*

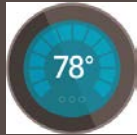




*I would also like to commend the expanded use of Critical Peak Pricing in the proposal. **SMUD has been a leader in this important area, which will be crucial to grid balancing as evening net peak demands grow due to a warming climate and increased solar adoption. CPP is the most proven-effective tool in eliciting demand-side adjustment to help balance the grid when it is under stress.**"*

- Severin Borenstein, E.T. Grether Professor of Business Administration and Public Policy at the Haas School of Business and Faculty Director of the Energy Institute at Haas. He is also Director Emeritus of the University of California Energy Institute (1994 – 2014)

Berkeley
Haas

Optional Critical Peak Pricing and Misc. Rates Changes

Optional residential Critical Peak Pricing (CPP) rate

Who can participate?	<div></div> <div>Customers with smart thermostats</div> <div></div> <div>Customers with solar and storage</div> <div></div> <div>Customers with storage only</div> <div></div> <div>Customers with solar only</div>
What?	<ul style="list-style-type: none">• In times of extreme grid stress, SMUD declares a Critical Peak Pricing “event.”• SMUD asks customers to conserve energy and use batteries (where applicable).• Opted-in customers pay more during “events” in exchange for a discount on summer Off-Peak and Mid-Peak hours.
When?	<div></div> <ul style="list-style-type: none">• June, July, August, September• 1 to 4 hours per event with advance notice• No more than 50 hours per summer
Why?	<ul style="list-style-type: none">• Conserves energy & reduces stress on grid during peak events, helping make energy available for others.• Reduces need for energy from less environmentally friendly power plants.• Opted-in customers receive discount rate during summer Off-Peak and Mid-Peak hours.

Open Access Transmission Tariff update

This rate does not impact SMUD's residential and commercial retail customers

Price description	Schedule 1 Scheduling, system control and dispatch service	Schedule 2 Reactive supply and voltage control from generation or other sources service
Yearly Delivery (per MW of Reserved Capacity per year)	\$4,340.62	\$964.52
Monthly Delivery (per MW of Reserved Capacity per month)	\$361.72	\$80.38
Weekly Delivery (per MW of Reserved Capacity per week)	\$83.47	\$18.55
Daily Delivery (per MW of Reserved Capacity per day)	\$16.69	\$3.71
Hourly Delivery (per MW of Reserved Capacity per hour)	\$1.0434	\$0.2319

New Programs to Support Storage with Solar

\$25M storage incentive program

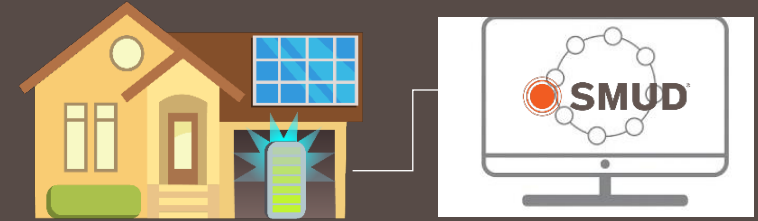
Type



Battery Storage



Battery Storage + Residential Critical Peak Pricing



Battery Storage + Virtual Power Plant Partner

Incentive

Up to \$500

Up to \$1,500

Up to \$2,500

Benefits

- Customer uses stored energy when power is most expensive
- Reduces SMUD's peak load
- Battery provides backup power during an outage

- Battery storage benefits



- Helps SMUD during critical times when energy demand is highest or the grid is stressed

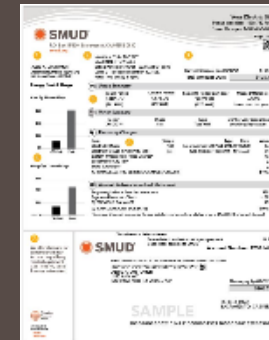
- Battery storage benefits



- SMUD pays an ongoing payment for participating in the program
- VPP partner shares stored energy with other customers when called upon

New Virtual Solar Program (VNEM)

- Virtual Solar Program for under-resourced multi-family dwelling communities effective June 1, 2022.
- SMUD buys all solar and allocates bill credits to individual program participants in that building
- Participant receive a bill credit from on-site solar
 - Eligible customers continue to receive EAPR or MED Rate discounts



Public Outreach Process

Public outreach process: integrated communications campaign

Community engagement

- Community organization & neighborhood association outreach meetings.
- Public workshops.
- Phone calls.
- Emails and information for sharing.



Internal communication

- Daily updates, ENNs and a dedicated SharePoint site with employee toolkit including talking points, FAQs, fact sheets and presentation recordings.



Integrated communications campaign



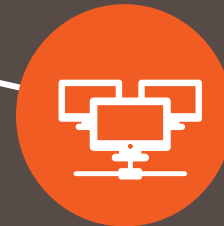
Extensive communication materials & resources

- Printed & digital newsletter articles to residential & commercial customers.
- Press release issued to all local media.
- 3 public notices published
- Fact sheets.



Email, web & digital

- Dedicated pages on SMUD.org and info on main page.
- E-newsletters.
- Social media posts.



Multi-lingual

- Rate materials translated to Spanish and Hmong and continue to be translated to other languages as opportunities are identified.



Public outreach process: direct engagement



Emails to customers, local organizations and to our Listserv subscribers.

256,000+

Community & business leaders received emails, letters and/or phone calls to offer meetings & information.



1,200+



Community & business partners were provided information and fact sheets to share with their constituents, members and networks.

300+

Local elected officials were mailed info packets and offered to meet.



55



Community organizations or neighborhood associations received presentations.

~50

What we've heard from customers and stakeholders

- Proposal is straightforward with minimal impact to majority of community partners' constituents.
- Significantly less feedback than in 2019 rate process which proposed grid access charge for solar customers.
- Changes to Net Energy Metering are overdue.
- Concerns about Solar and Storage Rate from segments of the solar industry and some solar customers.
- Current solar customers prefer proposed Solar and Storage rate than previously proposed grid access charge.
- Questions about mechanics of proposed changes:
 - How will battery storage incentives, Critical Peak Pricing, and Virtual Solar program?
 - How was the 7.4¢/kWh for excess solar calculated? Why isn't it higher? Can it be phased in?
 - Can NEM 1.0 be extended beyond 2030?
- Concerns about proposed rate increases from small # of customers impacted by COVID-19.

What happens next?

Final decision @ SMUD Board meeting - Sept. 16, 2021 @ 5:30 p.m. via Zoom

Need more information?

- Read the CEO & GM's Report on smud.org/RateInfo.
- Email questions or comments to ContactUs@smud.org or call 1-855-736-7655.
- For tips on energy management, visit smud.org.
- For commercial customer service, call 1-877-622-7683.
- For residential customer service, call 1-888-742-7683.



We welcome your
questions and
comments!

Questions?



Comments on and alternatives to the proposed SMUD electricity rates and charges for 2022 and 2023

By Mark Graham

To be presented at the SMUD rate hearing on
August 31, 2021

Summary

The current TOD rates are taxes because they are slightly more than 9.2% higher than SMUD's marginal cost of providing electricity service. "SMUD uses marginal cost to set rates."

(SMUD's RT02 Rate Design Study, which I sent you on June 18.)

SMUD admits that it has not removed this scalar from its rates.

The current (2020) rate costing study is not a rate design study and does not show calculations for the proposed rates.

SMUD has failed to identify a California law or court opinion that supports or authorizes SMUD adding a 9.2% scalar – or any scalar - into its rates. Identify it tonight! Direct staff to identify it tonight.

Just because utilities in other states use scalars does NOT mean SMUD can use them. Article XIII C.

Just because the CPUC lets the investor owned utilities (IOUs) use scalars does NOT mean SMUD can use them. As you know CPUC does not regulate or authorize SMUD rates.

Therefore, the proposed rates are taxes, requiring voter approval.

SMUD failed to submit the proposed 2022 and 2023 rates to the electorate for a vote.

The only vote will be by the SMUD Board of Directors.

Argument

The current TOD rates are taxes because of the 9.2% scalar (2017). SMUD's proposed rates for 2022 and 2023 violate Article XIII C of the California Constitution, Voter Approval for Local Tax Levies, because without voter approval SMUD is:

1. extending and increasing current TOD rates, which exceed SMUD's reasonable costs to of providing electric service by about 10.7% as a result of the previous rate process; and
2. extending and increasing the System Infrastructure Fixed Charge (SIFC)

A short lesson on local government taxes.

The California Constitution, Article XIII C, section 2(d) says:

(d) No local government may impose, extend, or increase any special tax unless and until that tax is submitted to the electorate and approved by a two-thirds vote.

A tax is **extended** when an agency lengthens the time period during which it applies. *Gov. Code, § 53750, subd. (e)*. A tax is **increased** when an agency revises its methodology for calculating a tax and the revision results in increased taxes being levied on any person or parcel. *§ 53750, subd. (h)(1)*.

Webb v. City of Riverside, 23 Cal. App. 5th 244, 258.

A tax is “any levy, charge, or exaction of any kind imposed by a local government, except” for 7 exceptions. The most relevant of those exceptions is Article XIII C, Section 1 (e) (2):

“(2) A charge imposed for a specific government service or product provided directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of providing the service or product.”

The original TOD rates exceeded your marginal cost of service by 9.2%. Now it is up to about 10.7%.

SMUD's Rate (RT02) Rate Design Study is proof that current residential TOD rates violate Article XIII C of the California Constitution.

The current (2021) rates and charges still contain that extra factor known as a scalar. SMUD told me by email that it has not removed or back that scalar out of its rates.

Extending and increasing these taxes without voter approval, as SMUD proposes to do in this rate action, would be a violation of the California Constitution, Article XIII C and would subject SMUD to legal action.

SMUD could potentially be ordered to refund the excess (the “scalar”) to all of its customers.

Alternative Recommendation #1

SMUD should comply with the California Constitution, Article XIII C (from Proposition 26 in November, 2010) by:

1. Removing the 9.2% “scalar”* from SMUD rates. Then raise rates by 1.5% and 2.0% for 2022 and 2023.
2. Eliminating the System Infrastructure Fixed Charge.

*(plus subsequent increases to it that SMUD added to inflate its rates when it created the TOD rates in June, 2017 and extended 4 times in the 2019 rate action)

SMUD does not have a choice whether to comply with Article XIII C (from Proposition 26) of the California Constitution.

Lying about your rates and claiming that they are not based on marginal cost, even when your CEO and GM Report says that they are (see page 98, “SMUD uses marginal cost to set rates.”) will not get you out of it. See also the 2017 and 2019 Reports.

Lying about the law and claiming that Article XIII C does not apply to SMUD rates will not get you out of it. I sued SMUD and your attorneys did not even claim this in any of their 23 affirmative defenses.

The rest of the slides in this file present background and supporting evidence on what I have said so far. You need to see this information. However I will not have time to talk about it during my presentation because your Board President has only allowed me two (2) additional minutes to speak to you even though I followed the procedures in Ordinance 15-1 and made my written request for a total of ten (10) minutes way back in June.

SMUD's first TOD rates were set on June 15, 2017 in Resolution 17-06-09. SMUD published a CEO and GM Report and Recommendation on Rates and Services (the "2017 Report").

That Report contained, as Appendix I, a letter dated December 6, 2016 from NERA Economic Consulting addressed to SMUD's Resource Planning and Pricing Department (RP&P).

The subject of the letter was NERA's independent review of SMUD's 2016 Marginal Cost of Service (MCS) Study and its proposed residential Time of Use (TOU) rates for the period 2017 – 2019. That letter was pages 109 – 112 of the Report.

NERA wrote that it had reviewed SMUD documents including the 2018 Residential Time-of-Use Rate (RT02) Design Study (“Rate (RT02) Design Study”).

That study quantified the marginal cost components of SMUD’s then proposed residential Time of Day (TOD) rates.

Marginal cost components were: Generation, Capacity, RPS, Transmission, Subtransmission, Distribution, Distribution Facilities, Meter and Services. (page 3)

The problem is that after carefully accounting for each Marginal Cost Component SMUD unconstitutionally added a “scalar” of 9.2% to set rate revenues equal to budget revenues.

In other words SMUD had a target for how much money it wanted to take in via residential TOD rates and to reach that target it added 9.2% to its marginal cost.

Compare Table L to Table M, both on page 14 in the Rate (RT02) Design Study.

Table L:

Table L: Time-of-Use Energy Marginal Cost

Time-of-Use		Energy, Ancillary Service & RPS Cost	Generation Capacity	Trans & Dist	Residual Distribution Facilities	Public Good	Total Energy Marginal Cost
Rates Time Of Use	Summer Peak	\$0.0713	\$0.0680	\$0.0689	\$0.0371	\$0.0096	\$0.2548
	Summer Mid-Peak	\$0.0580	\$0.0253	\$0.0248	\$0.0270	\$0.0096	\$0.1447
	Summer Off-Peak	\$0.0484	\$0.0126	\$0.0102	\$0.0239	\$0.0096	\$0.1048
	Winter Peak	\$0.0612	\$0.0096	\$0.0000	\$0.0398	\$0.0096	\$0.1202
	Winter Off-Peak	\$0.0491	\$0.0013	\$0.0000	\$0.0271	\$0.0096	\$0.0872

Table M:

Table M: Proposed Energy Charge

Time-of-Use		Total Energy Marginal Cost	Scalar 9.2%	2017 Energy Charges
Rates Time Of Use	Summer Peak	\$0.2548	\$0.0235	\$0.2783
	Summer Mid-Peak	\$0.1447	\$0.0133	\$0.1580
	Summer Off-Peak	\$0.1048	\$0.0097	\$0.1145
	Winter Peak	\$0.1202	\$0.0111	\$0.1313
	Winter Off-Peak	\$0.0872	\$0.0080	\$0.0952

SMUD's explanation of this 9.2% "scalar" is:

“The proposed time-of-use energy rate is completed by setting proposed rate revenues equal to rate revenues for the budget year. The reconciliation of marginal costs to rate revenues is accomplished through increasing final marginal cost energy charges by a scalar of 9.2%.”

Rates must be based on SMUD's reasonable costs, not on its budget wishes, according to the California Court of Appeal.

“However, if a local government body chooses to impose tiered rates unilaterally without a vote, those tiers must be based on cost of service for the incremental level of usage, not pre-determined budgets.”

(Capistrano case, Order modifying opinion; no change in judgment, dated May 19, 2015.)

*CAPISTRANO TAXPAYERS ASSOCIATION, INC., v. CITY OF
SAN JUAN CAPISTRANO*, G048969, COURT OF APPEAL OF
THE STATE OF CALIFORNIA, FOURTH APPELLATE
DISTRICT, DIVISION THREE, (Super. Ct. No. 30-2012-
00594579)

There is no point doing a Rate Design Study if you add to your marginal cost a 9.2% “scalar” in order to “set[] proposed rate revenues equal to rate revenues for the budget year”.

That defeats the purpose of the Rate Design Study.

A rate design study can only include your real marginal costs. You are not allowed to inflate your rates by adding in things like scalars.

The second question is, “Do fixed charges violate Article XIII C of the California Constitution?”

The proposed rates also violate the California Constitution in that SMUD is extending and increasing the System Infrastructure Fixed Charge (SIFC). Page 38 of the CEO and GM Report.

California Constitution, Article XIII C, Section 1:

“The local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor’s burdens on, or benefits received from, the governmental activity.”

Emphasis added.

Consider two hypothetical SMUD customers: a single man and a married man with 5 children. The single man's "burdens on, or benefits received from" SMUD's electric service are much less than the married man's. Yet they both pay the same System Infrastructure Fixed Charge.

The SIFC is unfair to the single man and unconstitutional.

From: [Severin Borenstein](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Comment on SMUD 2021-22 Rate Proposal
Date: Monday, August 23, 2021 10:22:21 AM
Attachments: [image001.png](#)

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello:

I would like to weigh in in favor of the SMUD 2021-22 Rate Proposal. I think it is an important first step in moving policy on Distributed Energy Resources to focus on compensating the value these resources bring to the grid. As we battle the climate crisis, there is quite a lot of uncertainty about the value of different low-carbon resources in different locations on the grid. This proposal improves the alignment of financial incentives with the best available knowledge today about the value of DERs. In my view, it probably is still overly optimistic in valuing the contribution of DERs, and in the vision for the size of the DER role in the grid. However, I do believe that DERs have an important role to play, and our knowledge of the most cost-effective low-carbon grid architecture continues to evolve. At this point in that evolution, the proposed changes are a prudent step in the right direction.

I would also like to commend the expanded use of Critical Peak Pricing in the proposal. SMUD has been a leader in this important area, which will be crucial to grid balancing as evening net peak demands grow due to a warming climate and increased solar adoption. CPP is the most proven-effective tool in eliciting demand-side adjustment to help balance the grid when it is under stress.

Sincerely,

Severin Borenstein

Severin Borenstein



Email: severinborenstein@berkeley.edu

WWW: <http://faculty.haas.berkeley.edu/borenste>

Blog: <http://energyathaas.wordpress.com/>

Twitter: @BorensteinS

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(p) [510-642-3689](tel:510-642-3689)

Faculty Director, [The Energy Institute at the Haas School of Business](#)

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Berkeley, CA 94720-5180

Affiliated Professor, [Department of Agricultural & Resource Economics](#)

Affiliated Professor, [Energy & Resources Group](#)

Research Associate, [National Bureau of Economic Research](#)

Member, [Board of Governors](#), California Independent System Operator

[The views I have expressed in this email do not necessarily represent those of the CAISO or the University of California]

Composed using very imperfect voice dictation software. My apologies for dictation errors that I do not catch.

From: [Lee Miller](#)
To: [Public Comment](#); [Gregg Fishman](#); [Heidi Sanborn](#); [Nancy Bui-Thompson](#); [Brandon Rose-Contact](#); [Dave Tamayo](#); [Rosanna J. Herber](#); [Rob Kerth External](#)
Subject: [EXTERNAL] Public Comment to be read aloud for Aug 31 Special Board of Directors meeting , Agenda Item: Net Energy Metering (NEM)
Date: Saturday, August 28, 2021 3:31:53 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The SMUD Board members have expressed a desire for NEM 2.0 to grow the solar market in Sacramento, but the executive staff has shown once again that they don't have the same desire. As the basis for the proposal, SMUD executive staff used the water carrier for the California Utilities and the CPUC consulting company E3 report as the basis for SMUD's NEM 2.0 proposal. The SMUD website is full of public comments regarding the flaws in the E3 study. During a SMUD board meeting over 80 people were waiting to make their public comments on this flawed study, but many had to drop off the line because the meeting was running long and the SMUD board decided not to be flexible to let people make their comments when a panel participant offered to give up their time on the agenda. But the executive chose to use the bad data anyway.

When bad data is used, well, as the old saying goes, Garbage in and Garbage out.

SMUD staff claims that the large reduction in export credits will not impact the market, a puzzling and insincere claim. Staff is projecting that their proposed NEM 2.0 plan will lead to 39,000 additional solar-only customers by 2030, equivalent to 4,300 projects per year, which is nearly the current installation rate. SMUD's NEM 2.0 proposal will bring the number of PV-only projects closer to zero according to the industry initial estimates.

An export rate of 7.4 ¢/kWh would also jeopardize the new solar homes mandate as the Energy Commission can only enforce requirements if they are cost-effective. Further, last year, SMUD pushed through a special allowance under the state building code to build utility-scale power plants in place of rooftop solar incorporated into the building.

SMUD's NEM 2.0 proposal includes incentives for energy storage systems. Great news, but customers enrolled in critical peak pricing, or the virtual power plant program will receive additional benefits, but SMUD has yet to release the details. The board has promised transparency, but as usual, the executive staff does not unless they are pressured by customers, someone raises an issue to their board member or someone asks for a public record request.

Other proposals presented by SMUD staff related to solar will further impede the market. SMUD would like residential interconnection fees to increase to \$475 for systems <10 kW and \$900 for systems >10 kW. Commercial interconnection fees would range from \$2,500 to \$5,000.

Utilities should be able to recoup the costs of interconnecting systems, but SMUD proposed fees are significantly higher than the fees in other utilities. Interconnection fees in LADWP, which has a highly resource-intensive interconnection process, the charge is only \$130 to recuperate their costs for systems <30 kW. So why the large discrepancy? Where are the numbers to back the need for these high interconnect fees? Another example of Executives Staff lack of transparency.

The current NEM 2.0 proposal does not include a fixed charge nor charges on the solar energy

consumed on-site, and that is a very good thing. The \$25 million battery incentive program could help grow the battery market. The virtual power plant program, if done right, could increase the PV + storage projects, but the information released does not have the details needed to make any real estimates as to how much and how effectively these programs and how it will lead to the closing of local fossil fuel power plants. Again, lack of transparency on the part of the Executive Staff.

SMUD's proposal ignores a longstanding California principle that ensures solar users can stay on the same net metering credit for the lifetime of their solar system which is 20 years. SMUD executive staff is proposing 10 years. Solar users make a significant investment that has important community and societal benefits, a request that was ignored by Executive Staff as a requirement for the E3 report. Solar users are owed the consideration of a likely return on their investment. SMUD's proposal destroys that likelihood.

SMUD Board and executive staff have shown time and again, that they do not think the energy produced by a customer's solar panels is valuable. They do not see rooftop solar as an important way to reduce air pollution and help SMUD achieve its zero-carbon goals.

SMUD's Zero Carbon by 2030 plan which was created as a result of the climate emergency declaration calls for an additional 250,000-500,000 kW of rooftop solar by 2030. If SMUD kills the cost-effectiveness of solar, SMUD will not meet its goal and encounter great difficulty in closing its fossil fuel power plants, three of which are in low-income neighborhoods. Has executive staff not noticed that California has been in a 10-year drought? The drought is lowering water levels in dams and reservoirs which will impact, the hydroelectric power plants. So where will this gap in energy come from? SMUD might need even more rooftop solar than originally thought to meet its zero-carbon goal. Perhaps executives staff behind-the-scenes plan is to keep the fossil fuel plants open longer, blaming the drought instead of the short-sightedness of the executive staff NEM 2.0 plan as the excuse.

The board sets the policies, and the executive staff carries out that policy. It seems that the executive staff has fallen very short of achieving the board's expressed goal. The board needs to send this proposal back to executive staff and have them come up with a better plan with more transparency and customer participation

Sincerely

Lee Miller

Ward 3

From: [Sean Frame](#)
To: [Brandon Rose-Contact](#); gbfishman@gmail.com; [Nancy Bui-Thompson](#); [Rosanna J. Herber](#); [Rob Kerth External](#); davetamayo2@gmail.com; [Heidi Sanborn](#); [Public Comment](#)
Subject: [EXTERNAL] Please read aloud at SMUD Board Meeting Aug 31 Agenda Item SMUD NEM 2.0 Rates
Date: Sunday, August 29, 2021 1:43:51 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I am writing to address your proposed changes to Solar and Storage rates and the terms of those rates. I relocated to Sacramento from Placerville about a year ago. At my old residence, I installed solar panels in an array that was about the right size for my residence and needs. I did so with an understanding of the rough payback time, based upon the rates and the way my utility, PG&E, would compensate me for generating excess electricity.

When I moved to Sacramento, installing solar at my residence was at the top of my list of items to do at my home. In doing my research, I discovered immediately that SMUD was proposing new rates of compensation, and that the sizing of my system would be limited to the past usage at my residence. Both of these factors immediately gave me pause. Should I invest my money in a system when the payback time might change? Does it make sense to purchase a system that is too small because my residence has been occupied by my 90 year old mother-in-law (who used much LESS electricity than a family of 4 with children doing distance learning and adults working from home)? Just the uncertainty was enough for me to reconsider installing solar.

Now that I see what you are proposing, I have to say that solar would no longer make sense for me and my family. I say that as someone who is keenly aware of how climate change is threatening the future of our species and as the parent of two sons who will inherit this deadly mess if we don't start fixing it now. I WANT to do the right thing, and I WANT a public utility that helps me do it. Instead of discouraging rooftop solar, I would like to see it expanded to include more people in multi-unit housing and incentives for low income ratepayers and renters. I know that rooftop solar alone cannot solve the climate crisis, but it MUST be a viable part of the mix.

Let's just be clear--the changes you are proposing will kill rooftop solar. They will certainly cause more GHGs to be released (in direct opposition to your "Carbon Free 2030" initiative.) They will incent people to purchase dirty GHG releasing gas and diesel generators to protect against outages. They are NOT in keeping with your mission as a PUBLIC utility tasked with acting in the public interest and necessity.

You must reverse course and return to providing the incentives to grow rooftop solar and storage in our region. Your ratepayers and the young people of this region are watching. Do the right thing.

Sincerely,
Sean Frame
110 Westcott Way
Sacramento, CA 95864
(415) 309-6912

From: coyote1@surewest.net
To: [Public Comment](#)
Subject: [EXTERNAL] GM Rates Report Public Hearing Tuesday Aug 31st
Date: Monday, August 30, 2021 3:44:26 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Comments on SMUD's Proposed Critical Peak Pricing

Rick Codina August 31, 2021

I strongly support the intent of the Critical Peak Pricing (CPP) program to encourage the installation of battery storage and other future resources in SMUD's planned Virtual Power Plant. My comments here apply to CPP as a condition of SMUD's battery incentive program.

The current GM Report on Rates and Regulations does not provide actual CPP rates and otherwise offers only scant information. Yet, batteries are such a big investment that SMUD should post more details on this new tariff to allow prospective customers to evaluate the financial benefits for investing in storage and committing to the CPP program. The tariff becomes effective next June, but the pricing and conditions should be published well in advance – by the end of this year, for example. Here are some questions that the CPP should be answering:

What Is the Discounted Non-Peak Pricing? What are the discount prices for mid-peak and off-peak time periods? Do they apply to all non-peak hours during the summer season, including weekend and holidays? For solar customers, the details are particularly important since discounted off-peak prices will effectively lower savings during solar self-consumption hours.

What Is the Critical Peak Pricing Rate? The original SmartSacramento pilot in 2011 balanced the off-peak discounts with a very high CPP rate of 75 cents/kWh as an incentive to voluntarily curtail loads when activated. The current proposal is for a price adder during CPP called events on top of current TOD prices. Will this be a fixed adder set annually, or a per event price? Will the rate change each year?

When the CPP extends beyond the peak period, will the adder be applied to baseline TOD or to the discounted TOD mid and off-peak pricing? Does this also apply to export power to the grid during called CPP events, or is the adder on the current export compensation rate?

What Are the Terms for Participation? Will the battery discharge be controlled by SMUD as a condition of participation? How long will the commitment be to the CPP program? The Report says a minimum of one year but implies a longer period may be required.

Can SMUD Share Cost-Benefit Analysis? The Report notes that the CPP program will be financially neutral for SMUD ratepayers. But can staff provide details on the estimated potential savings and payback for program participants? If SMUD expects 30,000 battery participants to help meet its Carbon Zero goals, it should demonstrate the cost benefits for their relatively large investment in batteries. This is particularly true for existing solar customers contemplating upgrading to solar + storage since participation in the CPP program will entail losing their grandfathered pricing status for the sale of export generation.

Will SMUD Support CPP for New Construction? A good portion of the projected new solar installations will be in new construction where Title 24 requires it. However, SMUD's Neighborhood SolarShares program offers builders to opt out in favor of participation in a SMUD solar farm. This option jeopardizes local solar + storage distributed generation. As an alternative, SMUD can extend

Virtual Net Metering program, currently proposed only for affordable housing projects, to new and existing multi-family complexes, allowing more of these units to participate in CPP and battery installations.

Rick Codina

From: [John Briggs](#)
To: [Public Comment](#)
Subject: [EXTERNAL] August 31, 2021 Board Meeting
Date: Monday, August 30, 2021 4:05:40 PM

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My name is John Briggs. I was a non-NEM representative on the Technical Working Group -- Value of Solar and Storage. I have remained engaged in the process for the adoption of NEM 2.0 and submit this email as my comments concerning the adoption of the proposed changes to the NEM program.

There are common systemic issues all utilities in California are facing from the impact of NEM 1.0 on utility rates: (i) There is a significant and growing cross-subsidy paid by non-NEM customers to NEM customers which has a disproportionate impact on the low to moderate income population and (ii) NEM customers do not pay a fair share of the costs of the fixed assets needed to deliver on demand power shifting these costs to non-NEM customers.

Indeed, those who can participate in roof top solar and storage and electrification, such as electric cars, are more affluent. NEM 1.0 effectively imposes a regressive tax on those least able to absorb it-- a reverse Robin Hood situation. It is only fair that a rate structure be adopted which avoids a windfall to better off NEM customers.

It is also important to remember that NEM 1.0 was designed to provide a generous financial incentive to promote the nascent solar industry. Needless to say, the solar industry has matured and is vigorous. The goal has been reached. Simply stated, there is no need to continue to make grossly inflated energy purchases to spur the solar industry. A fair value for NEM energy deliveries was developed through a painstaking and thorough analysis starting with the Working Group and ending with the E3 report after robust public participation. That effort should form the bedrock for NEM 2.0 because it reflects a considered analysis taking into consideration the relevant factors identified by the stakeholders.

In my travels I have also read a criticism of NEM 2.0 as "penalizing" NEM customers for generating their own power. This argument ignores a two basic facts:

First, NEM customers are not "off the grid". When the sun goes down or does not shine on overcast days, they flip the switch and the lights turn on because of power supplied through the grid. Conversely, the grid takes delivery of their excess power. The importance of basic grid infrastructure, including reliable and dispatchable generation, has been recently demonstrated by the shortage of capacity during hot days.

Second, tested by market standards, the rate at which NEM customers are reimbursed for delivered power is not competitive. Solar farms deliver power at 3-4 cents/kwh versus about 12 cents for NEM customers. If anyone is getting penalized,

it is non-NEM customers who are paying dearly for NEM generated electrons.

At bottom, the consideration of NEM 2.0 should be driven by fundamental fairness. E3's valuation of solar and solar plus storage is a solidly derived value. While it is more than the wholesale rate of scaled up solar, it takes into consideration the unique aspects of roof top solar, particularly when storage is considered. Moreover, the disparate impact on low to moderate income customers must be addressed: How can the reverse Robin Hood condition be perpetuated? I believe that as a public entity SMUD has a higher duty to make sure energy is delivered at a fair and sustainable price to all customers, without shifting costs from the haves to the have nots. At the same time existing NEM customers should be protected for a reasonable period by continuing NEM 1.0 in recognition of their reliance on cost/pay back calculations which likely influenced the decision to install solar. Furthermore, incentives from SMUD for the addition of battery storage should be adopted because the data demonstrates it is a cost effective technology in the long run.

Thank you for considering my comments.

From: [Megan Shumway](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Solar Plus Batter power sharing and NEM2
Date: Tuesday, August 31, 2021 5:24:55 PM

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Honorable Directors;

I think SMUD is generally, moving in the right direction, but there are areas of deep concern to me. I turn to you to express our opinions to the SMUD CEO. Primarily, it is clear SMUD has not taken the shortcomings of the E3 report seriously. In addition, they have not modified their view of rooftop solar owners as rich people foisting off paying their fair share of electric infrastructure on to the poor. This attitude offends me deeply! Short of sharing my SMUD bill and income tax return, which is not anyone's business, I will assure you I am not rich and can not afford large donations of my funds to *any cause*, including to SMUD to fund any energy project.

Let's be clear: SMUD charges me a \$22.25 "System Infrastructure fixed charge" along with County tax and State surcharge every month. And SMUD charges me for any kilowatt I get from SMUD and even breaks it down into time-of-day. SMUD knows how much energy I produce with my solar system that is saving SMUDS kilowatts for use elsewhere, just like anyone else who conserves energy. Now there is a proposal to increase the Net Energy Metering that would make it even less likely people will want to invest in Rooftop Solar or even buy home with Rooftop Solar (by State law new homes must have solar or SMUDs Solar Shares, which is less economical for the homeowner.) SMUD apparently wants to ensure they are the only economical energy produces by snuffing individual consumer's ability to utilize the sun that hits their rooftop to provide their energy needs. This is a self-serving, policy that is not taking into consideration the consequences of their action. We need solar on every Rooftop that can support it if we a to get off our addiction to fossil Fuel

If a recent survey is any indication of participation in the Emergency battery use/ Virtual Power plant, I am severely disappointed. First of all, SMUD asked a question without giving adequate information to answer the question: if I would participate? No information about if this was behind my meter calculations if I was in control of the battery discharge and would it apply to a one-time or possibly multiple times I would be required to share my storage. In addition, they seemed to want to charge ME a large fee for my peak hours and in return give me a tiny discount (for how long or how often is not clear) on my off-peak hours as compensation, which in no way comes even close to making up for the charge, for the privilege of sharing my power in an emergency situation. Of course, this was for Emergency use, which SMUD says I would be notified in advance, most likely 24hrs in advance, but possibly only a few hours in advance. It would probably be only once a year but it could be multiple times. If this notice is by email, I could miss it entirely if it was after I checked my email, which is once a day if that!

Let me be clear, I would graciously share my stored power for a reduced fee to SMUD, say what SMUD would normally pay for my excess energy. Considering they would be paying premium fees for kilowatts elsewhere during a heatwave this would be a great deal. Heck, I might give SMUD the energy for free if they gave me a credit for the same amount on my bill which seems to be a fair market offer.

I have to question SMUD's motives when they try to invent programs designed to fleece

rooftop solar owners. Perhaps there are rich people with sufficient guilt complexes who would go for these schemes and willingly pay to play. But you average middle class or poor person you may have aided in getting rooftop solar should not have to pay any more than anyone else for kilowatts. They have already made a long-term investment in energy production. It is time SMUD gave rooftop solar the respect it deserves. Start treating rooftop solar-like any other energy producer. Energy Production needs to change if we are ever going to save ourselves from the worst of what climate change has in store for us. Developing micro-grids is not just another way to make corporate size profits, it is to build a resilient grid and our salvation. I recommend diverting funds from long-distance power lines into developing micro-grids that connect and share evenly & fairly, throughout the SMUD territory.

The Survey left me confused and convinced SMUD is still operating on incomplete and poor data from the E3 report that doesn't take into account the damage Carbon is doing to our habitat and the price of its effects on our lives (warming-drought-wild fires-loss of homes-infrastructure loss-and loss of human and animal lives-decreased food production-burned watershed -lack of potable drinking water-potential eco refugees) This is the only reason I support a price on carbon. Additionally, E3 does not address the economics of long-distance power line construction, maintenance, and their risk of causing fires and blackouts if they fail or are turned off during red flag warnings. Then that leads to refrigeration failures that cost thousands in food waste, medication waste, and loss of productivity and revenue to small businesses and taxes that would have been paid to the state.

Take a lesson from PG&E Long-distance lines have risks.

My short-term hope is SMUD makes an attitude adjustment towards Rooftop Solar that is needed if we are to succeed in my long-term hope, that we prevail in the fight of our lives for a stable, safe livable climate.

--Sincerely,
Megan Shumway B.S.N.

From: [Tom Wiechert](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Comment on Item 2, Aug 31 Special Board of Director's Meeting
Date: Tuesday, August 31, 2021 5:42:21 PM

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As part of the proposal, SMUD is stating that the new rate would apply to excess energy created.

Would SMUD please define the term "excess energy" under new proposal.

Can we assume that this refers to energy produced in excess of actual consumption, and not the solar generated for consumption.

From: [Jane Lamborn](#)
To: [Public Comment](#)
Cc: [Paul Lau](#); [Brandon Rose-Contact](#); [Nancy/Bui-Thompson@smud.org](#); [gbfishman@gmail.com](#); [Rosanna J. Herber](#); [Rob Kerth External](#); [davetamayo2@smud.org](#); [Heidi Sanborn](#)
Subject: [EXTERNAL] Public Comment to be read aloud, Special SMUD Board Meeting, 8/31/21, topic NEM 2.0
Date: Tuesday, August 31, 2021 5:45:34 PM

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RE: Public Comment to be read aloud, Special SMUD Board Meeting 8/31/21, topic NEM 2.0

Dear SMUD Board of Directors and General Manager Paul Lau,

As a homeowner with rooftop solar, I have seen the benefits and savings available with solar-powered systems. And, as a resident of California, I have seen the devastation and damage caused by drought, fires and floods that have been exacerbated by climate change. Using solar power to reduce our reliance on fossil fuels is critical to mitigating this harm.

SMUD's commitment to reducing greenhouse gas emissions, as expressed in advertisements and statements on its webpage, reads well but it is contradicted by the pending proposals to reduce the credit that solar users receive for sharing their extra energy, and to force existing solar users onto the lower solar credit tier if they add a battery to their system. Just when SMUD should be working to expand the use of solar power and make it more available to more people, it is proposing to make it more expensive for anyone who adds a battery or more solar panels or who is a new homeowner.

What SMUD should be proposing is to make solar energy available to more people, such as residents of multi-tenant buildings, and to provide subsidies for low-income customers. This would help these customers reduce their energy bills and help protect them from rising energy costs and power outages that could occur.

Rolling back the successful net metering program makes energy more expensive for everyone and takes us away from the goal of reducing GHG emissions. Making solar power available to more homeowners and businesses will take us forward to a more equitable, energy-efficient system and this should be where SMUD wants to go.

Thank you,

Jane Lamborn
Wilton, CA - Ward 2
jillamborn@sbcglobal.net

From: [Ed Smeloff](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Modification of Solar and Storage Rate
Date: Tuesday, August 31, 2021 6:23:33 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Greetings SMUD Board Members,

The SMUD staff proposal has five key elements. The multi-prong program should be designed to work together to create a transformative policy for distributed energy at SMUD.

Some of the new elements SMUD has articulated require further elaboration. Vote Solar strongly supports the development of an optional Critical Peak Price Rate. The details of that rate still need to be developed and should be done quickly and transparently. Likewise, SMUD is proposing a Virtual Net Energy Metering (VNEM) program for multi-family dwellings in under-resourced communities. Again, the details of this program need further elaboration. We urge SMUD to quickly complete the VNEM program design so that the program can begin in early 2022.

Importantly, SMUD is proposing an innovative Virtual Power Plant Program. This program has a lot of potential to address the need to meet the evening net peak energy requirements. It is worth noting that the Hawaii Electric Company is already implementing the equivalent of SMUD's battery incentive program to meet critical needs. The Hawaii program provides an incentive of \$4350 for customers who install storage paired with solar and commit to making 5 kilowatts available daily for serving peak system requirements.

SMUD is setting a goal of 30,000 customers that will have paired systems by 2030. While Vote Solar appreciates SMUD setting a target for customer engagement by 2030. However, we believe that the 30,000 customer participation in the VPP is not ambitious enough given the climate emergency and customer interest in energy resiliency. We encourage SMUD to adopt a stretch goal of enabling at least 90,000 customers to install storage with solar over the next decade. If SMUD were to achieve such an ambitious target it will clearly transform the way energy is generated and delivered for Sacramento and set an example for the rest of California and beyond.

From: [Robin's ProtonMail Account](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Public Comment - Item 2
Date: Tuesday, August 31, 2021 6:40:32 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I oppose the rate hike and support Mark Graham's argument. The rates must be based on SMUD's reasonable costs, not on its budget wishes, according to the CA Court of Appeal. We should have voter approval of rate hikes.

The rates were just raised in 2019. Is this a public utility or are you trying to make a profit for investors? You're more concerned with the Stock Market than your customers. We are in the middle of a pandemic and a depression. Inflation is rising every day. We have many low-income people that cannot afford a rate increase.

In response to your argument for wildfire mitigation, how many customers live in a forested location? I don't think many.

Regarding solar rates, if you want to have more people install solar, you must provide an incentive. This increases the amount of energy SMUD can provide. Otherwise, new customers will not install solar. Also, if rates are raised, customers will have no incentive to install all electric homes.

Robin Durston

**SACRAMENTO MUNICIPAL UTILITY DISTRICT
BOARD OF DIRECTORS MEETING
STATEMENT OF FRANK R. LINDH
REGARDING NET ENERGY METERING REFORM
AUGUST 31, 2021**

Members of the Board of Directors:

Thank you for the opportunity to appear before you this evening. I wish to speak to you about Agenda Item Number 2, specifically the Staff's proposed successor tariff for Net Energy Metering customers – that is, SMUD customers who install solar and solar-plus-storage systems on their property.

By way of background, I served for six years, from 2008 until 2014, as General Counsel of the California Public Utilities Commission. The CPUC, as it is known, is the State agency that regulates, among other things, the rates and terms of service of the investor-owned electric utilities in California. My tenure as General Counsel of the CPUC was truly a highlight of my professional life.

I now have my own private law practice in San Rafael, California, where I live. After 36 years in the field of energy law and regulation, I remain quite active on energy issues in California. I also teach a course on energy law and regulation as an adjunct professor at the University of San Francisco.

I think Staff has brought you a sound set of recommendations for reform of SMUD's Net Energy Metering tariff, and I encourage you to vote to approve it. The Staff should be commended, in my opinion, not only for developing a solid proposal,

but also for undertaking an extensive and inclusive stakeholder process to examine the Net Energy Metering program.

During my years at the California Public Utilities Commission, on more than one occasion I heard our Commissioners speak in public about their admiration about SMUD. Two things about SMUD seemed to especially impress the Commissioners. First, as a customer-owned utility, SMUD has always had a singular focus on serving its customers. Second, because the members of this Board are locally elected and directly accountable to the people, you have the ability to be closely in touch with the needs of the community.

Here's what I said when I spoke before the Finance and Audit Committee on May 18, 2021:

SMUD has a track record of providing leadership in the drive for decreased emissions of greenhouse gases and other pollutants, and for finding customer-friendly solutions to the challenges of the industry.

On the specific topic of Net Energy Metering, there are three aspects of the Staff Proposal that deserve favorable comment,

First, and in my mind foremost, is that Staff has been responsive to the need for greater equity among customers. The existing Net Energy Metering arrangements are lopsided in favoring customers who have rooftop solar or paired solar-plus-storage arrays. These are generally wealthier customers. They enjoy

subsidies at the expense of lower- and middle-income customers who cannot afford this technology. While the existing Net Energy Metering tariffs made sense when the solar industry was just getting started, the industry is now mature. The subsidies, moreover, have grown in size over time, and so the social justice issue is now at the forefront.

Second, I hope you will approve Staff's proposal to institute an interconnection fee for solar customers. A fee of this type is necessary, in my view, because it will help cover at least a portion of the costs of SMUD's transmission and distribution system, which of course serves all customers.

Third, Staff is correct to focus economic incentives on solar-plus-storage, rather than standalone rooftop solar. This is because solar-plus-storage provides significantly better benefits to the grid and reductions in emissions of greenhouse gases and other pollutants, as compared to standalone rooftop solar.

For these reasons, I respectfully urge you to adopt the Staff Recommendations regarding Net Energy Metering reform.

Thank you again for the opportunity to address you this evening.

Frank R. Lindh
San Rafael, California
FrankRichLindh@gmail.com

From: [David Salzmann](#)
To: [Public Comment](#)
Subject: [EXTERNAL] SMUD Virtual Board Meeting - Written Comment Submission
Date: Tuesday, August 31, 2021 5:52:02 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

My name is David Salzmann. I am with the SD350 organization and I do not think that the Sacramento Municipal Utility District should go forward with some of its proposed policies for rooftop solar. For starters, the cuts that the district is making to its net energy metering rates will contract the market for rooftop solar. If homeowners are to be potentially paid less for the solar energy they produce, it will take them much longer to pay off the overhead fees of installing solar in the first place. This will cause less and less people to want to use rooftop solar, since they would be forced to make a much longer long term investment that is less beneficial to them. Additionally, the district should not force all of its customers to switch to a new net energy metering plan in 2030, as customers on its net energy metering 1.0 plan should be able to stay on their initial plan for 20 years after they sign on to it, which is a state standard. This is what customers have come to expect, and it allows them to follow through on paying back their overhead investments. When it comes to changes in a market like rooftop solar, which greatly emphasizes the collaboration between customer and service provider, it's crucial to make well reasoned changes to policy. This is why I think that the Sacramento Municipal Utility District should revise its proposed rooftop solar policy changes -- specifically its cuts to current net energy metering plans -- in order to prevent the rooftop solar market from contracting.

Thank you,
David Salzmann

From: [lola.pudinski](#)
To: [Public Comment](#)
Subject: [EXTERNAL] NEM 2.0
Date: Tuesday, August 31, 2021 8:26:05 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning,

Our state is on fire and we need to do everything we can to combat climate change and reduce our use of fossil fuels.

There are Issues with the study SMUD is using to justify this proposal and **therefore** the new NEM rate -

Most importantly: SMUD's solar study incorrectly claimed that SMUD "pays" solar users for simply using their own solar energy at home.

The study is also contradicted by mounting evidence and an analysis by national grid modeling experts Vibrant Clean Energy showing that rooftop solar reduces the cost of the electricity grid, can cut Californians' energy bills by \$120 billion over the next thirty years, and reduce global warming pollution by an additional 4 million metric tons.

Residential Solar Battery costs approximately \$8,500 (Tesla powerwall) the incentive is an average of \$850 which is nowhere close to making up for the gutted solar credit to make it economical to purchase a battery in addition to the cost of solar panels. This would make investing in roof-top solar uneconomical for the average working and middle class family and would make it impossible for low income families to have solar.

We know from Texas, Louisiana and locally PG&E that long distance power lines are becoming more and more dangerous - power outages, fires, etc.

This proposal will not help SMUD reach their climate goals as it will end solar-rooftop. It will kill the solar industry in California.

Also, I just want to say how disappointed I was with SMUD's frontloading the public comments with their community partners that seemed to be there only to boost

SMUDs ego.

California and SMUD should lead and make solar energy possible for ALL SMUD customers not discourage the expansion of solar.

Thank you,

Lola Pudinski

From: [Laura Rosenberger Haider](#)
To: [Public Comment](#)
Subject: [EXTERNAL] Aug 31, 2021 SMUD Meeting
Date: Tuesday, August 31, 2021 6:06:50 PM

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I would like the call in number to this meeting.

The proposed interconnection fees are too high.

I am against the charge on solar & reduced export pay rate. These undervalue the health benefits of solar and will cause a loss of clean solar jobs.



August 31, 2021

Subject: COMMENTS TO SACRAMENTO MUNICIPAL UTILITY DISTRICT BOARD OF DIRECTORS

Dear President Bui-Thompson and members of the SMUD Board of Directors and staff:

My name is Patrick Sterns with SunPower Corporation, a 35-year old leading solar energy and storage solutions provider. We have supported more than 1,400 residential projects and 60 commercial projects within SMUD territory. We also work with 17 of the top 20 new homes builders within the state and of the more than 370 local contractors we work with to sell and install our products across the state, 25 of them work in the SMUD territory with more than 900 employees.

I'd like to thank the board for their commitment to providing reliable and affordable energy to your customers, and leading the charge as California transitions to a clean energy future. However, in order to achieve this goal, we feel that the board must re-evaluate the current net metering proposal and examine the impacts it would have on SMUD's vision of a zero carbon economy.

First, a problem with SMUD's NEM 2.0 proposal is the large reduction in the export rate to 7.4 ¢/kWh – which is based on a flawed and contentious ACC proceeding, from the existing export rate of ~11-18 ¢/kWh. Such a drastic cut will severely impact the economic benefits to many solar and storage customers, regardless of the various financing options – which have opened up these benefits to Californians of all income levels. This abrupt reduction would create a shock to the industry and its employees, and cause a decline to the Sacramento market. We suggest a glidepath in order to maintain sustainable growth within the industry and make headway toward your zero-carbon goal. We would couple this suggestion with an increase in the export rate during peak periods, specifically up to 21 ¢/kWh during peak summer hours and 11.5 ¢/kWh during non-summer peak hours.

We also welcome SMUD's energy storage system proposal but would suggest it does not go far enough. The average incentive between now and 2030 would result in an average subsidy of \$841. We suggest SMUD consider increasing its subsidies for energy storage systems, as these early adopters would be providing and paying for what you have identified as vital grid service. Storage is in high demand, especially amidst the increasing reality of power shut-offs and wildfire mitigation activities. Yet, battery storage is still currently cost-prohibitive for most families. We ask for support that encourages investment in this growing technology until the price of batteries can come down to a more economical level.

Last, would like to see an expansion of virtual net metering to all multitenant properties. VNEM is a critical tool that can extend the benefits of rooftop solar to various types of Californians, across all economic brackets, within the Sacramento area. VNEM is often the only viable method for multifamily properties, regardless of income designation, to install solar and many multifamily properties have low-income tenants even if the property is not designated as such. As a result, VNEM should be made available to all multitenant properties. In addition, expanding VNEM to multi-tenant commercial properties, such as shopping centers, would enable more storefronts and businesses to go solar as well.

The ongoing transition to an environment free of fossil fuels will not be easy, and will take all segments of the industry working together. But, encouraging investments in distributed solar and storage is about leveling the demand load and providing greater stability to the grid, paid for by others. It's about increasing resiliency and creating a viable path to meeting the state's and SMUD's energy goals. Finally, more utility scale solar means more high-voltage transition lines, which will necessarily mean more utility-caused wildfires. I thank you for your time today and urge you to re-examine your current NEM 2.0 proposal.

Thank you,

From: Osha Meserve <Osha@semlawyers.com>
Sent: Tuesday, August 31, 2021 8:55 PM
To: Paul Lau
Cc: Brandon Rose-Contact; Public Comment
Subject: [EXTERNAL] Re: Oppose Changes to SMUD Solar Program - 8/31/21 Hearing

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I meant to enclose what the meeting looked like for a member of the public:



Osha R. Meserve

(916) 425-9914

From: Osha Meserve <Osha@semlawyers.com>

Sent: Tuesday, August 31, 2021 8:51 PM

To: Paul Lau

Cc: Brandon Rose-Contact; Nancy Bui-Thompson; gbfishman@gmail.com; Rosanna J. Herber; Rob Kerth External; Dave Tamayo, Ward 6; Heidi Sanborn; publiccomment@smud.org

Subject: Re: Oppose Changes to SMUD Solar Program - 8/31/21 Hearing

Dear Mr. Lau,

Thanks for your response. I did attempt to listen to the meeting for a while and I heard many comments with which I agreed, and that further explained the folly of the proposal before SMUD. I was at one time proud to be a SMUD customer because of its leadership in implementing the solar and renewable energy revolution. David Freeman and many others worked tirelessly to create the reputation SMUD enjoys in renewable energy circles. There must be another way to address the need to update SMUD's programs without gutting the very thing that will help stop climate change and make the grid more reliable - distributed generation.

I was also appalled at the accessibility of the hearing tonight. I have attended many meetings around the state both pre and during COVID. I have never seen a meeting that did not at least make an effort to show the decision makers and key staff in real time during the meeting. The meeting did not meet minimum standards for public accessibility in my opinion.

I ask that you please take a look at these issues and take steps to address them.

Thanks,

Osha Meserve

Orangevale

Customer for 23 years

Osha R. Meserve

(916) 425-9914

From: Paul Lau <Paul.Lau@smud.org>

Sent: Tuesday, August 31, 2021 9:26:07 AM

To: Osha Meserve <Osha@semlawyers.com>

Cc: Brandon Rose-Contact <brandondrose@hotmail.com>; Nancy Bui-Thompson <Nancy.Bui-Thompson@smud.org>; gbfishman@gmail.com <gbfishman@gmail.com>; Rosanna J. Herber <Rosanna.Herber@smud.org>; Rob Kerth External <rob@kerth.us>; Dave Tamayo, Ward 6: <davetamayo2@gmail.com>; Heidi Sanborn <Heidi.Sanborn@smud.org>

Subject: RE: Oppose Changes to SMUD Solar Program - 8/31/21 Hearing

Thank you for taking the time to reach out to me to share your thoughts about proposed changes to SMUD's solar rate and related programs.

SMUD is taking urgent and aggressive action and leading the way in the fight against climate change. SMUD's 2030 Zero Carbon Plan is our road map to eliminate all carbon emissions from our power supply by 2030, which is the most aggressive goal of any large utility in the United States. Our Zero Carbon Plan recognizes that we need a wide range of renewable resources to address climate change safely, reliably and affordably. Rooftop solar is an important part of the solution, but there are other more cost effective renewable resources that benefit all customers by helping keep our rates low for all customers.

The proposed changes would impact all new solar customers effective Jan. 1, 2022. **Customers with solar installed before Jan. 1, 2022 can stay on today's rate through 2030.**

Today, SMUD pays solar customers an average of 13 cents per kilowatt hour for the energy they sell back to the grid. That's about 6 cents per kilowatt hour more than the value determined through an extensive and detailed independent study and 9.5 cents per kilowatt hour more than we currently pay for solar energy from utility-scale solar plants.

The proposed rate of 7.4 cents per kilowatt hour for solar energy sold back to the grid is data-based, accurate, balanced and fair. It will help ensure we don't permanently benefit one group of customers at the expense of another. The rate and supporting programs will continue to encourage customers to invest in solar, and ideally solar with battery storage. The proposed changes recognize the early investments customers have made in solar and the benefits delivered to SMUD, our grid and all customers by extending the current rate to existing solar customers through 2030. In addition, you'll find our proposed rate is more generous than the new solar rates put in place by many neighboring utilities.

Our proposal also includes generous and industry leading incentives of up to \$2,500 to encourage customers to install battery storage. Combining rooftop solar with battery storage maximizes the benefits of clean solar energy by making it a flexible resource that can be used to help ensure reliability for all customers, even when the sun isn't shining.

SMUD's current policy is that any new rooftop solar system must be sized to offset onsite usage, which means system size cannot exceed 100% of the customer's energy usage. Our proposal includes increasing system size to 110% of the customer's energy usage to give customers future flexibility to increased energy usage from electric vehicles or electric heat pump water heaters, as examples.

By taking a holistic and flexible approach to transforming our rates with supporting programs, such as incentives for battery storage and virtual net metering to make solar accessible in low-income communities, SMUD is creating an aggressive and achievable pathway to decarbonize our power supply in a way that will maximize health and environmental benefits and maintains affordable rates and reliability for all.

Thank you again for taking the time to share your thoughts with me.

Paul Lau (*he/him/his* [what's this?](#))
Chief Executive Officer and General Manager
w.916-732-6252 | paul.lau@smud.org

SMUD | Powering forward. Together.
6201 S Street, Mail Stop B308, Sacramento, CA 95817
P.O. Box 15830, Sacramento, CA 95852-0830

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From: Osha Meserve <Osha@semlawyers.com>
Sent: Monday, August 30, 2021 2:32 PM
To: Paul Lau <Paul.Lau@smud.org>
Cc: Brandon Rose-Contact <brandondrose@hotmail.com>; Nancy Bui-Thompson <Nancy.Bui-Thompson@smud.org>; gbfishman@gmail.com; Rosanna J. Herber <Rosanna.Herber@smud.org>; Rob Kerth External <rob@kerth.us>; Dave Tamayo, Ward 6: <davetamayo2@gmail.com>; Heidi Sanborn <Heidi.Sanborn@smud.org>
Subject: [EXTERNAL] Oppose Changes to SMUD Solar Program - 8/31/21 Hearing

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear General Manager and Board:
I am writing to oppose the proposed modifications to SMUD's solar programs.

The changes in energy buy-back pricing, limitation on use of batteries, and limits on sizing of solar will deter residents from making the investments needed to achieve a more sustainable electrical grid. SMUD should be promoting small scale rooftop investments while at the same time pursuing larger scale solar projects. Both are needed and the current proposals go too far in slashing incentives for residents to make these investments.

I also support more initiatives to get multifamily and commercial structures into solar. We have a great climate for these investments and SMUD should not be fighting actions that will reduce pollution and provide more grid resilience in our region.

Please support small scale solar and all of the local businesses that help make these investments possible and do not adopt the changes as proposed.

Thanks,
Osha

Osha R. Meserve
Orangevale, CA 95662

 mobile: 916.425.9914 ■  email: osha@semlawyers.com

From: [Jean Woo](#)
To: [Public Comment](#)
Cc: [Igor Tregub](#)
Subject: [EXTERNAL] Comments on Public Hearing SMUD BOD on NEM 2.0 - 8-31-2021
Date: Tuesday, August 31, 2021 9:12:25 PM
Attachments: [Hayibo_2021-s2.0-S1364032120308832-main.pdf](#)

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Comments to the SMUD BOD 8-31-2021

Dear SMUD Board of Directors,

In response to the SMUD NEM 2.0 proposal I cite two articles by Severin Borenstein and James Bushnell, "Headwinds and Tailwinds: Implication of Inefficient Retail Energy Pricing for Energy Substitution" (Energy Institute WP 319R) and "Do Two Electricity Pricing Wrongs Make a Right? Cost Recovery Externalities, and Efficiency", NBER Working 24756 (<http://www.nber.org/papers/w24756>). The analysis is for older data (2014-2016), and does not include true costs of the externalities of fossil fuels or carbon. There is a recent paper, "A review of the value of solar methodology with a case study of the U.S. VOS" by Koami Soulemane Hayibo and Joshua M. Pearce, 2021, that looks at the true value of solar quite differently. I have attached that paper to this email. There are serious flaws in the E3 study which have been cited by others. The only way to reach a net-zero status is to increase solar plus battery systems, and utility scale system.

It seems on first reading that the issue of infrastructure and transmission can be covered by a fixed monthly fee, similar to what PGE added to electricity bills over the last few years.

One troubling fact is that some 25% of PGE customers are on the care plan, reducing their bills by 25% and requiring huge subsidies from the rest of us. I would argue that low income "care plan" subsidy not be added to electricity and gas bills, and come out of the state's general fund, now per Gov. Newsom, \$72 million dollars in excess of the state's budget. That would help reduce the excessive increases in our utility bills, I am sure.

With regard to your issue of the solar customers costing non-solar customers, in fact rooftop solar customers supply excess power to their neighbors at a small fraction of the cost (3 cents/kwh or less) which then the utility (for us it's PGE) then charges 23 cents per kwh for the exact same electrons, which they in fact did not generate. The utility actually makes money on the transaction but has never calculated the value so it is not reported in any obvious way. So the argument that there is a cost to non-solar customers is incorrect. As a solar + battery owner, we not only support our neighbors by providing excess power during the day, we also can provide power to neighbors for recharging cell phones and even EVs, during a PSPS or wildfire event. No one is quantifying or monetizing this aspect of solar+battery power, but for

resiliency this is a valuable resource for neighborhoods that is not being monetized at all in your computations. Looking forward, solar + battery on homes and government offices is a long-term resiliency investment that needs to be factored in.

Making solar and battery storage more difficult will make it harder for people to put solar and battery power into their homes. It reduces resiliency going forward and makes the costs for each PSPS event or heat event higher for the utilities. Having resilient neighborhoods will help all of the residents, reduce costs for the utilities, and help control bill costs for those with solar + battery systems, residential and commercial. What is needed is an incentive program to put on the solar and add sufficient batteries for a 4 hour "ride-through" minimum, with an on-bill repayment system so those without up-front funding (not available from any bank I know of) can use the rebate plus on-bill system to cover the cost while reaping the benefits. Owners of rentals should also be able to participate in the on-bill repayment system and rebate program. I would guess that the units with a solar+battery system could even rent for more than those without.

With respect to the overbuilding, I would argue for 50% over-building especially if going to get a EV, heat pump, heat pump water heater, electric dryer, induction stove, i.e. going all electric.

In other words, consider all the things one would need to replace (gas furnace, gas dryer, AC, gas stove, anything using propane, gas water heater) to go all-electric. We have an obligation to all of our next generations to cut GHG emissions as quickly as possible, so oversizing and granting the first step -(1) solar + battery systems, and the important second step, (2) on-bill financing, are key.

With regard to the issue of the cost of utility scale versus local distributed solar and battery systems, I would like to point out:

- (1) Long transmission lines lead to greater risk from weather events, fire, and cyberattack, whereas in-the-neighborhood locations for solar + battery will lead to greater resiliency and less risk from weather events and cyberattack. Also
- (2) Distributed energy resources, i.e. solar and battery storage, reduces the cost of upkeep for the transmission lines and the risk of wildfires

The reduced maintenance and operations costs could alone be worth putting more resources in neighborhoods and on rooftops, as PGE has discovered. Increased costs for the results of fires or utility shut-off events could be quite a bit higher over the next 10-20 years, as properties become more valuable, and homeowners and commercial and small businesses discover that they have to sue to be made whole.

On balance, maintaining and strengthening NEM and a strong incentive system for solar + battery systems is the best long-term plan for the future. Increased incentives for all multi-family housing and use of VNEM should be a central core of this incentive system. A minimum of 20 years for contracts for payback is necessary to provide the basis for those contemplating installation of solar and battery systems in homes, multi-family and commercial systems.

In response to EV charging, if you have an EV you should add at least 2 kW of solar. If you have solar plus battery, you should charge your EV during peak solar periods - 11 - 3 pm. That way you use more of the sun's power and soak up the excess solar power during the day. And many people do not charge EV's daily - smaller amounts more frequently may be the better charging plan.

Thank you for the opportunity to comment on your proposal.

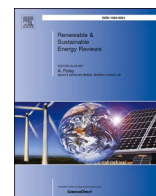
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A review of the value of solar methodology with a case study of the U. S. VOS

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ABSTRACT

Distributed generation with solar photovoltaic (PV) technology is economically competitive if net metered in the U.S. Yet there is evidence that net metering is misrepresenting the true value of distributed solar generation so that the value of solar (VOS) is becoming the preferred method for evaluating economics of grid-tied PV. VOS calculations are challenging and there is widespread disagreement in the literature on the methods and data needed. To overcome these limitations, this study reviews past VOS studies to develop a generalized model that considers realistic future avoided costs and liabilities. The approach used here is bottom-up modeling where the final VOS for a utility system is calculated. The avoided costs considered are: plant O&M fixed and variable; fuel; generation capacity, reserve capacity, transmission capacity, distribution capacity, and environmental and health liability. The VOS represents the sum of these avoided costs. Each sub-component of the VOS has a sensitivity analysis run on the core variables and these sensitivities are applied for the total VOS. The results show that grid-tied utility customers are being grossly under-compensated in most of the U.S. as the value of solar eclipses the net metering rate as well as two-tiered rates. It can be concluded that substantial future work is needed for regulatory reform to ensure that grid-tied solar PV owners are not unjustly subsidizing U.S. electric utilities.

1. Introduction

Solar photovoltaic (PV) technologies have had a rapid industrial learning curve [1–4], which has resulted in continuous cost reductions and improved economics [5,6]. This constant cost reduction pressure has resulted in a spot price of polysilicon Chinese-manufactured PV modules of only US\$0.18/W as of April 2020 [7]. There are several technical improvements, which are both already available and slated to drive the costs further down such as black silicon [8–10]. The International Renewable Energy Agency (IRENA) can thus confidently predict that PV prices will fall by another 60% in the next decade [11]. However, even at current prices, any scale of PV provides a levelized cost of electricity (LCOE) [12] lower than the net metered cost of grid electricity [13] and this will only improve with storage costs declining [14–18]. Specifically, PV already provides a lower levelized cost of electricity [12,19,20] than coal-fired electricity [13,21,22]. In addition, PV technology can be inherently distributed (e.g. each electricity consumer produces some or all of their electricity on site thus becoming ‘prosumers’). Distributed generation with PV has several technical

advantages, including improved reliability, reduced transmission losses [23,24], enhanced voltage profile, reduced transmission and distribution losses [25], transmission and distribution infrastructures deferment, and enhanced power quality [26]. As PV prices decline, prices of conventional fossil fuel-based electricity production are increasing due to aging infrastructure [27–29], increased regulations (in some jurisdictions) [30–33], fossil fuel scarcity [34–36], and pollution costs [37–41]. Thus, PV represents a threat to conventional utility business models [42] and there is evidence that some utilities are manipulating rates to discourage distributed generation with solar [43], while others are embracing it such as Austin Texas or the state of Minnesota [44]. Rates structures vary widely throughout the U.S [45–48]. and there has been significant effort to determine the actual value of solar (VOS) electricity.

This shift towards VOS is fueled by criticisms of its predecessor [49], net metering, that is misrepresenting the true value of distributed solar generation [50–52]. VOS is more representative of the electricity cost because under a Value of Solar Tariff (VOST) scheme, the utility purchases part of, or the whole net solar photovoltaic electricity generation from its customers, therefore dissociating the VOST from the electricity

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Nomenclature:

B	Burner tip fuel price [\$/MMBtu]
C_D	Distribution capacity [MW]
C_G	Utility generation capacity [p.u.]
C_H	Health cost of natural gas [\$/kWh]
C_{PV}	PV capacity for year 'n' [kW]
C_T	Transmission capacity [p.u.]
D	Utility Discount rate
D_E	Environmental discount rate
D_H	Heat rate degradation rate
D_{PV}	Degradation rate of PV
E	Environmental cost [\$/MMBtu]
F	Utility discount factor
F_E	Environmental discount factor
h	Number of hours in the analysis period
H_C	Heat rate of combined cycle gas turbine [Btu/kWh]
H_{CT}	Heat rate of peaker combustion turbine [Btu/kWh]
H_n	Heat rate for year n [Btu/kWh]
H_P	Heat rate of the plant [Btu/kWh]
H_S	Solar heat rate [Btu/kWh]
i	Number of years in analysis period
I_C	Installation cost of combined cycle gas turbine [\$/kW]
I_D	Investment on distribution capacity per year without PV [\$/]

I_{DP}	Investment on distribution capacity per year with PV [\$/]
I_P	Installation cost of peaker combustion turbine [\$/kW]
K	Growth rate
M	Reserve capacity margin
n	nth year of analysis period
O	Output of the PV [kWh]
$PL1$	1st year load capacity [kW]
$PL10$	10th year load capacity [kW]
Q	Distribution cost [\$/kW]
S	PV fleet shape [kW]
S_C	Solar capacity cost [\$/kW]
U_C	Utility cost [\$/]
U_F	Utility fixed operation and maintenance cost [\$/kW]
U_P	Utility price [\$/kWh]
U_T	Utility transmission capacity cost [\$/kW]
U_V	Utility variables operation and maintenance cost [\$/kWh]
VOS	Value of solar [\$/kWh]
V_x	V_1 : Avoided operation and maintenance fixed cost [\$/V ₂ : Avoided operation and maintenance variable cost [\$/V ₃ : Avoided fuel cost [\$/V ₄ : Avoided generation capacity cost [\$/V ₅ : Avoided reserve Capacity cost [\$/V ₆ : Avoided transmission capacity cost [\$/V ₇ : Avoided distribution cost [\$/V ₈ : Avoided environmental cost [\$/V ₉ : Avoided health liability [\$/]

retail price [51,53]. Performing a complete VOS calculation, however, is challenging. One of the main challenges is data availability and accuracy [54,55]. Three data challenges have been identified by Ref. [55] that are: 1) the time granularity of the solar irradiation data, 2) the origin of the data, modeled versus measured, and 3) the data measurement accuracy. Other challenges faced by utilities while assessing the VOS are which components to include in the calculations, and what calculations method to assess the value of each components [56]. The possible components across the literature that are suggested to be included in a VOS as avoided costs and solar benefits are: **energy production costs** (operation and maintenance) [45–47,57–63], **electricity generation capacity costs** [45–47,50,57–63], **transmission capacity costs** [45–47,50,57–61,63], **distribution capacity costs** [45–47,50,57–63], **fuel costs** [45–47,50,57,60–63], **environmental costs** [45,47,57,58, 60–63], **ancillary including voltage control benefits** [47,57–59,63], **solar integration costs** [47], **market price reduction benefits** [47, 60], **economic development value or job creation** [46,47,57,60,61], **health liability costs** [57,60,64], and **value of increased security** [47, 57]. A guidebook has been developed by the United States' Interstate Renewable Energy Council (IREC) for the calculation of several of the VOS components [57]. These methods have been further developed by the U.S. National Renewable Energy Laboratory (NREL) [58]. NREL has provided more detailed calculation methods than the guidebook from the IREC with a different level of accuracy. The methods with a higher level of accuracy are more complicated to implement and require a higher level of data granularity. A qualitative study on VOS performed in 2014 suggested the inclusion of all relevant components in a VOS studies [64]. The calculation of the VOS can be done annually, as in the case of Austin Energy [50,53], or can be fixed for a selected period, as per the case of Minnesota state's VOS (25 years) [45,53]. There are recently an increasing number of studies looking into externality-based components of VOS especially environmental costs and health liability costs [65–67]. This is because a country with high solar PV penetration rate provides a healthy population according to a German study [68]. An estimated average of 1424 lives could be saved each summer in the Eastern United States, and \$13.1 billion in terms of health savings if the total electricity generation capacity in the Eastern United States included 17% of solar

PV [69]. For the entire U.S. if coal-fired electricity were replaced with solar generation, roughly 52,000 premature American deaths would be prevented from reduced air pollution alone [70]. Not surprisingly, the latest report from North Carolina Clean Energy Technology Center found out that there are policy changes on VOS across the United States with 46 states, in addition of DC considering making significant changes in their solar policies and might be transitioning to a VOS model in coming years [63].

This indicates VOS is the way of the future for grid integrated PV, but how exactly should solar be valued on the modern grid? In this study the VOS literature is reviewed, and a generalized model is developed taking realistic future avoided costs and liabilities into account from the literature. The approach used here is a bottom-up modeling where the final value of solar to a utility system is calculated. This model factors in the existing parameters, that have been identified in VOS studies in different U.S. jurisdictions. The approach starts from the existing formula to calculate the levelized cost of electricity from solar PV technology [12] and updates the formula by adding the avoided and opportunity costs and the effect of different externalities. The costs considered in the study are: avoided plant operation and maintenance (O&M) fixed cost; avoided O&M variable cost; avoided fuel cost; avoided generation capacity cost, avoided reserve capacity cost, avoided transmission capacity cost, avoided distribution capacity cost, avoided environmental cost, and the avoided health liability cost. The value of solar represents the sum of these costs. Each sub-component of the VOS has a sensitivity analysis run on the core variables and these sensitivities are applied for the total VOS. These sensitivities are limited by the best available data on the variables in the literature and future work is needed to quantify the secondary costs that would lead to an even higher VOS. The conservative results developed here are presented and discussed in the context of aligning policy and regulations with appropriate compensation for PV-asset owners and electric utility customers.

2. Methods/theory

2.1. Avoided plant O&M – fixed cost (V_1)

The use of solar energy results in a displacement of energy production from conventional energy sources. The avoided cost of plant operation and maintenance (V_1) [\$] depends on the energy saved by using solar PV for electricity generation instead of conventional energy generation processes. Equation (1) describes the calculation of the capacity of solar PV (C_{PV}) [kW] throughout the lifetime of the solar PV system. During the first year of operation, the installed solar PV system is considered to not have suffered any degradation. Therefore, the capacity has a value of one. The degradation of the installed solar PV system is expressed by the degradation rate of PV (D_{PV}) and for a marginal year (n), the marginal capacity of the installed PV system for that year would be:

$$C_{PV} = (1 - D_{PV})^n \quad (1)$$

The fixed O&M cost is directly linked to the need for new conventional electricity generation plants. If the construction of new conventional generators in the location of interest can be avoided, there is no need to include the fixed O&M in the valuation of solar for this location. To calculate the value of the fixed O&M (V_1), the value of the utility cost (U_C) [\$] needs to be known first. The utility cost depends on four parameters, the capacity of solar PV (C_{PV}) mentioned above, the utility capacity (C_G) [p.u.], the utility fixed O&M cost (U_F) [\$/kW], and the utility discount factor (F). To calculate this utility cost, first the ratio of the capacity of solar to the utility capacity is calculated. This ratio is then multiplied by the utility fixed O&M cost. A discount is applied to the result by multiplying it by the utility discount factor [71]. The discount factor (F) depends on the year and can be calculated by using the discount rate (D). The discount factor for year (n) is [45]:

$$F = \frac{1}{(1 + D)^n} \quad (2)$$

The discount rate used in the formula describes the uncertainty and the fluctuation of the value of money in time. The value of the discount rate differs when considered from a utility point of view or a societal point of view and can highly impact the utility cost. While considering the economics of solar PV systems [57], has suggested the use of a discount rate lower than the value used by the utility.

$$U_C = U_F * \frac{C_{PV}}{C_G} * F \quad (3)$$

The avoided plant O&M fixed cost (V_1) is then calculated by summing the utility cost for all the years included in the analysis period.

$$V_1 = \sum_0^i U_C \quad (4)$$

2.2. Avoided plant O&M – variable cost (V_2)

The utility cost for the avoided variable O&M cost (V_2) [\$] is calculated by multiplying the utility variable O&M cost (U_V) [\$/kWh] by the energy saved by using solar PV systems or the output of the solar PV system (O) [kWh], and the result is discounted by the discount factor (F).

$$U_C = U_V * O * F \quad (5)$$

The avoided variable O&M (V_2) cost is the sum of the utility cost over the analysis period:

$$V_2 = \sum_0^i U_C \quad (6)$$

2.3. Avoided fuel cost (V_3)

Additionally, the calculation of the utility price (U_P) [\$/kWh]

require the knowledge of the equivalent heat rate of a marginal solar. According to Ref. [72], the heat rate [Btu/kWh] describes how much fuel-energy, on average, a generator uses in order to produce 1 kWh of electricity. It is typically used in the energy calculation of thermal-based plants and is therefore misleading for the calculation of solar energy production. Since the method evaluates the avoided cost from thermal-based plants, however, it is applied to solar PV generation. The heat rate (H_S) [Btu/kWh] of solar PV or displaced fuel heat rate during the first marginal year is calculated as:

$$H_S = \frac{\sum_0^h (H_P * S)}{\sum_0^h S} \quad (7)$$

In the equation above, the heat rate (H_P) [Btu/kWh] represent the real value of the utility plant's heat rate during the operation hours of the solar PV systems over the analysis period and the parameter (S) [kW] describes the PV fleet shape that is the hourly PV fleet shape production over the hours (h) in the analysis period.

After the heat rate for the first year has been calculated, the heat rate for the succeeding years in the analysis period can be calculated by the following equation [45]:

$$H_n = H_S * (1 - D_H)^n \quad (8)$$

The primary use of heat rates is the assessment of the thermal conversion efficiency of fuel into electricity by conventional power plants. As a result, it is natural to deduce that the rate at which the heat rate (D_H) decreases corresponds to the efficiency lost rate of the power plant [73].

The utility price (U_P) depends on the heat rates and can be calculated once the heat rate is known as:

$$U_P = \frac{B * H_n}{10^6} \quad (9)$$

Another parameter to account for is the burner tip price (B) [\$/MMBtu]. The burner tip price describes the cost of burning fuel to create heat in any fuel-burning equipment [74].

The avoided fuel cost (V_3) [\$] is calculated in a similar way as the value of the fixed O&M. First, the utility cost is calculated by multiplying the value of the per unit PV output (O) by the utility price (U_P). The result is then discounted by the discount factor. The discount factor used in the case of the avoided fuel cost depends on the treasury yield [45]. The avoided fuel cost is obtained by summing up the utility cost over the analysis period.

$$U_C = U_P * O * F \quad (10)$$

$$V_3 = \sum_0^i U_C \quad (11)$$

2.4. Avoided generation capacity cost (V_4)

The installation of solar systems reduces the generation of electricity from new plants. This is represented by the avoided capacity cost. To calculate the avoided generation capacity cost, the solar capacity cost (S_C) [\$/kW] needs to be known. Two variables are essential to evaluate the solar capacity cost, the cost of peaker combustion turbine (I_P) [\$/kW] and the installed capital cost (I_C) [\$/kW]. The cost of peaker combustion turbine (I_P) is the cost associated with the operation of a turbine that function only when the electricity demand is at its highest. The installed capital cost (I_C) describes the cost of combined cycle gas turbine updated by the cost based on the heat rate. The solar capacity can be calculated as follows [75]:

$$S_C = I_C + (H_S - H_C) * \frac{I_P - I_C}{H_{CT} - H_C} \quad (12)$$

H_{CT} [Btu/kWh] and H_C [Btu/kWh] are respectively the heat rate of the peaker combustion turbine, and the combined cycle gas turbine. After the calculation of the solar capacity cost (S_C), the utility cost can be

obtained by first, multiplying the ratio of solar PV capacity (C_{PV}) and utility generation capacity (C_G) by the value of solar capacity cost (S_C). Then, the result is discounted by the discount factor (F) to obtain the final value of the utility cost. And as in the previous cases the value of avoided generation capacity is the sum of the utility cost over the analysis period.

$$U_C = S_C * \frac{C_{PV}}{C_G} * F \quad (13)$$

$$V_4 = \sum_0^i U_C \quad (14)$$

2.5. Avoided reserve capacity cost (V_5)

The calculation of the avoided reserve capacity cost (V_5) [\$] follows the same pattern as the avoided cost of generation capacity. But in this case, the effective solar capacity, that is the ratio of the solar PV capacity (C_{PV}) and utility generation capacity (C_G) is multiply by the solar capacity cost, then the result is multiplied by the reserve capacity margin (M) to obtain the utility costs. After that, the utility cost is discounted as previously described by the discount factor (F). Then, the avoided reserve capacity is calculated by adding up the utility cost over the analysis period [58].

$$U_C = S_C * \frac{C_{PV}}{C_G} * M * F \quad (15)$$

$$V_5 = \sum_0^i U_C \quad (16)$$

2.6. Avoided transmission capacity cost (V_6)

The avoided transmission capacity cost (V_6) [\$] calculation is also performed similarly to the avoided generation capacity cost. This cost describes the losses that are avoided when electricity does not have to be transported on long distance because of installed solar systems. It is calculated by first multiplying the utility transmission capacity cost (U_T) [\$/kW] by the solar PV capacity (C_{PV}). The result is then divided by the transmission capacity (C_T) [p.u.] and the discount factor (F) is applied to obtain the utility cost for a marginal year. The avoided transmission cost is calculated by the sum, over the years in the analysis period, of the corresponding utility costs [76].

$$U_C = U_T * \frac{C_{PV}}{C_T} * F \quad (17)$$

$$V_6 = \sum_0^i U_C \quad (18)$$

2.7. Avoided distribution capacity cost (V_7)

The two major variables that influence the avoided distribution capacity cost (V_7) [\$] are the peak growth rate (K) and the system wide costs. The system wide costs account for several financial aspects of a distribution plant, among which, overhead lines and devices, underground cables, line transformers, leased property, streetlights, poles, towers etc. [77].

All the deferrable system wide costs throughout a year have been summed up and the result divided by the yearly peak load increase in kW over a total period of a decade to obtain the distribution cost per growth of demand.

The ratio of the 10th year peak load (PL_{10}) [kW] and the 1st year peak load (PL_1) [kW] are used in the calculation of the growth rate (K) of demand. The expression of the growth rate (K) is as follows [45,78]:

$$K = \left(\frac{PL_{10}}{PL_1} \right)^{\frac{1}{10}} - 1 \quad (19)$$

The distribution capital cost (Q) [\$/kW] is utility owned data and depends on the utility, and the growth rate (K) that can be obtained by

using the previous formula. An escalation factor is necessary to evaluate the distribution cost for deferral consecutive years [79].

After obtaining the distribution cost (Q) from the utility and growth rate (K) calculated, the distribution capacity (C_D) [kW] can be calculated from the growth rate. The result is then multiplied by the distribution cost and discounted by the discount factor (F) to get the discounted cost for a particular year. The discounted cost for the analysis period can in turn be used to calculate the investment during each year (I_D) [\$] of the analysis period [45].

$$I_D = C_D * Q * F \quad (20)$$

When there is no other generation system than solar PV that comprised the installed capacity, the investment per year (I_{DP}) [\$] in terms of deferred distribution can be calculated from the investment deferred [45].

$$I_{DP} = C_D * Q * DF \text{ (in terms of deferred distribution)} \quad (21)$$

After obtaining the yearly investment without PV (I_D) and the yearly investment in terms of deferred distribution (I_{DP}), the utility cost can be obtained by dividing the difference between the yearly investment without PV and the yearly investment with PV by the distribution capacity (C_D). This utility cost can be called the deferred cost per kW of solar. This deferred cost per kW of solar is discounted by the discount factor (F), multiplied by the solar PV capacity, and summed up over the analysis period to obtain the avoided distribution capacity cost.

$$U_C = \frac{I_D - I_{DP}}{C_D} * F * C_{PV} \quad (22)$$

$$V_7 = \sum_0^i U_C \quad (23)$$

2.8. Avoided environmental cost (V_8)

The three major pollutants that are considered in the calculation of the avoided environmental cost (V_8) [\$] are: greenhouse gases (GHGs), pollutants sulfur dioxide, nitrogen oxide, and hazardous particulates [80].

The two parameters that influences the cost linked to CO₂ and other greenhouse gasses' emission are the social cost of CO₂ and the gas emission factor [81]. With these two variables, the cost of avoided CO₂ can be calculated in dollars and then the real value linked to this cost is obtained by converting the previously calculated value in current value of dollars. This is done by multiplying the externality cost of CO₂ by the consumer price index (CPI) [82]. The obtained result is then multiplied by the general escalation rate for the following years [80]. The cost of CO₂ for every year is obtained by multiplying the previous value by pounds of CO₂ per kWh. The same logic is applied to the other pollutants to calculate the related costs and the cost related to all three categories of pollutant are added up to get the environmental cost (E) [\$/MMBtu].

By multiplying the environmental cost by the solar heat rate (H_S), the utility cost (U_C) is obtained. An environmental discount factor (F_E) is applied to the utility factor. The environmental discount factor (F_E) is defined as follows [83]:

$$F_E = \frac{1}{(1 + D_E)^n} \quad (24)$$

Here, D_E is the environmental discount rate taken from the Social Cost of Carbon report [81].

$$U_C = E * H_S * F_E * O \quad (25)$$

$$V_8 = \sum_0^i U_C \quad (26)$$

2.9. Avoided health liability cost (V_9)

The use of solar PV systems prevents part of the emissions of

pollutants from getting into the air. This can in turn result in great health benefits. The harmful pollutants that greatly impact human health are NO_x and SO_2 . These two chemicals react with other compounds when they are released in the air to form a heavy and harmful product that is called particulate matter $\text{PM}_{2.5}$, [84–86]. Particulate matter $\text{PM}_{2.5}$, can cause diseases such as lung cancer and cardiopulmonary diseases [87]. It is difficult to evaluate the cost related to the avoided health liabilities and the saved lives. Several works have investigated the calculation of the cost of human health related to electricity production through fossil fuels [88–91]. Nevertheless, the most relevant approach is the work of [91] because the methods accounts for changes of the cost at a regional and plant level. This has been made possible because of data collected by EPA on the emission level of facilities through the Clean Air Markets Program. The result obtained by Ref. [91] is conservative as it does not include environmental impacts over the long term (e.g. climate change) [66,68,69,92]. The calculation of the cost of health liability by Ref. [91] depends on the quantity of pollutants emitted [tons/year] during a year, the cost of a unit mass of emission for each pollutant in [\$/tons], and the annual gross load [kWh/year].

The health cost of energy produced by fossil fuel sources (C_H) [\$/kWh] obtained by Ref. [91] are used to calculate the utility cost. The utility cost (U_C) is the product of the health cost by the PV systems output (O), that is discounted by the environmental discount factor (F_E).

$$U_C = C_H * O * F_E \quad (27)$$

The avoided health liability cost (V_9) [\$] is then calculated by:

$$V_9 = \sum_0^i U_C \quad (28)$$

2.10. Value of solar (VOS)

There are three different ways to represent the value of solar. It can be expressed either as the annual cost [\$] over the analysis period or the lifetime of the installed solar photovoltaic system, or as the cost per unit of solar PV power installed [\$/kW], or finally as the cost of generated electricity by the solar system [\$/kWh] [58]. The most commonly used metric to express the VOS is the cost of electricity generated by the solar system [\$/kWh] because it is user friendly and is the same metric used by utilities on electricity bills [58]. To calculate the levelized value of VOS per kilowatt-hour of electricity produced, the sum of the value of all the avoided cost is calculated and then divided by the total amount of energy produced (O) during the analysis period discounted by the discount factor (F).

$$VOS = \frac{V_1 + V_2 + V_3 + V_4 + V_5 + V_6 + V_7 + V_8 + V_9}{\sum_0^i (O * F)} \quad (29)$$

where:

- V_1 : Avoided O&M fixed cost.
- V_2 : Avoided O&M variable cost.
- V_3 : Avoided fuel cost.
- V_4 : Avoided generation capacity cost.
- V_5 : Avoided reserve capacity cost.
- V_6 : Avoided transmission capacity cost.
- V_7 : Avoided distribution cost.
- V_8 : Avoided environmental cost.
- V_9 : Avoided health liability cost.
- O: Output of the solar PV system.
- F: Utility discount factor.

3. Sensitivity

The calculation of VOS requires several parameters that come from different sources. Some parameters are location dependent, while other parameters are state dependent, and there are parameters that are utility dependent. Many of these parameters can also change from one year to

another. As a result, there are wide differences in the calculation of VOS across the literature [56]. The utility-related parameters that can change from one VOS calculation to another are the number of years in the analysis period (i), the utility discount rate (D), the utility degradation rate, the utility O&M fixed, and variable costs, the O&M cost escalation rate, the hourly heat rate (H_p), the heat rate degradation rate (D_H), the reserve capacity margin (M), the transmission capacity cost (U_T), the peak load of year 1 (PL_1) and year 10 (PL_{10}), the distribution cost (Q), the distribution cost escalation factor (G_D), and the distribution capacity (C_D). Parameters such as the cost of peaker combustion turbine (I_p), the cost of combine cycle gas turbine (I_C), the heat rate of peaker combustion turbine (H_{CT}), and the heat rate of combine cycle gas turbine (H_C) can be either obtained from the utility or from the U.S. Energy Information Agency. The solar PV fleet (S) can also be obtained from the utility or by simulation using the open source Solar Advisory Model (SAM) (<https://github.com/NREL/SAM>) [45]. Other variables that can affect the VOS but are not controlled by the utility are the PV degradation rate (D_{PV}), the environmental discount factor (F_E), the environmental cost of conventional energy, the health cost of conventional energy, and the cost of natural gas on the energy market. Table 1 summarizes high and low estimates of the values for the variables that are required to perform a VOS calculation and the VOS component they are used to calculate.

3.1. Number of years in analysis period

The number of years in the analysis period varies and can be as low as 20 years, and as high as 30 years or more [12,57]. The typical warranty provided by solar panels manufacturer is 25 years. As a result, it is reasonable to set the lowest value of the analysis period to 25 years. Also, solar modules have proved to continue to reliably deliver energy 30 years after the installation of the system [57], therefore, 30 years has been set as the higher value of the analysis period in this study. Keyes et al. have pointed out that utility planning is often over shorter time periods (e.g. 10–20 years) [57]. However, economic decisions should be made over the entire life of the physical project not an arbitrary cutoff date [102] and there are existing methods to estimate the load growth on the utility side as it is usually done for conventional energy generators [53].

3.2. PV system degradation rate

The degradation rate of PV panels overtime depends on the location of operation as well as climate conditions (temperature, wind speed, dust, etc.). A statistical study conducted by the National Renewable Energy Laboratory [93] has found the value of the PV system degradation rate to be comprised between 0.5% and 1%. These two values are the boundaries that will be used as low and high values for the sensitivity analysis on the PV system degradation rate.

3.3. Utility discount rate

The discount rate is used to assess the change in money value overtime. This value can change depending not only on the location, but also, on the utility. A discount rate value as high as 9% can be used or a value as low as the inflation rate might be used. The discount rate used by utilities are usually in the high values, but the social discount rate is closer to the inflation rate [57]. As a result, 9% will be considered as the high-end value of the discount rate while the current inflation rate of 2.18% will be considered for the lowest value. It is important to note that the value of the inflation rate changes with time and if this value is chosen as the discount rate it should be updated regularly for new calculations of the VOS. Also, the value of the inflation rate can be subjected to ongoing events. The value of the inflation rate of 2.18% was chosen at a date before the coronavirus outbreak in the United States that is ongoing. The outbreak has brought the inflation rate to as low as

Table 1

Assumptions used for required variables for a VOS calculation.

Variable	High estimate	Source	Low estimate	Source	VOS components
Degradation rate of PV (D_{PV}) [%]	1	[93]	0.5	[57,93,94]	All components
Distribution capacity (C_D) [kW]	429,000	[95]	237,000	[95]	Avoided distribution cost (V_7)
Distribution cost (Q) [\$/kW]	1104	[95]	678	[95]	Avoided distribution cost (V_7)
Environment discount rate (D_E) [%]	2.5	[81]	5	[81]	Avoided environmental cost (V_8)
Environmental Cost (E) [\$/metric tons of CO_2]	[62–89]	[81]	[12–23]	[81]	Avoided environmental cost (V_8)
Health cost of natural gas (C_H) [\$/kWh]	0.025	[91]	0.025	[91]	Avoided health liability cost (V_9)
Heat rate degradation rate (D_H) [%]	0.2	[96]	0.05	[96]	•Avoided fuel cost (V_3) •Avoided environmental cost (V_8)
Heat rate of combined cycle gas (H_C) [Btu/kWh]	7627	[97]			•Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5)
Heat rate of peaker combustion turbine (H_{CT}) [Btu/kWh]	11,138	[97]			•Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5)
Installation capital cost of combined cycle gas turbine (I_C) [\$/kW]	896	[98]			•Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5)
Installation cost of peaker combustion turbine (I_P) [\$/kW]	1496	[98]			•Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5)
Load Growth Rate (K) [%]	1.17	[99]	−0.94	[99]	Avoided distribution capacity cost (V_7)
Number of years in analysis period	30	[57]	25	PV industry warranties	All components
Reserve capacity margin (M) [%]	36	[100]	13	[100]	Avoided reserve capacity (V_5) •Avoided fuel cost (V_3)
Solar Heat Rate (H_S) [Btu/kWh]	8000	[53]			•Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5) •Avoided environmental cost (V_8)
Transmission capacity cost (U_T) [\$/kW]	130.535	[101]	17.895	[101]	Avoided transmission capacity (V_6)
Utility Discount rate (D) [%]	9	[57]	2.18	[57]	•Avoided plants O&M fixed cost (V_1) •Avoided plants O&M variable (V_2) •Avoided generation capacity cost (V_4) •Avoided reserve capacity cost (V_5) •Avoided transmission capacity cost (V_6)
Utility fixed O&M cost (U_F) [\$/kW]	18.86	[95]	7.44	[95]	•Avoided distribution capacity cost (V_7)
Utility variable O&M cost (U_V) [\$/kWh]	0.01153	[95]	0.00216	[95]	Avoided O&M fixed cost (V_1) Avoided O&M variable cost (V_2)

0.25%. This value will not be used to run a sensitivity analysis because of the special conditions in which it occurred.

3.4. Environmental cost

The environmental cost associated with electricity production through conventional energy sources depends on the cost associated with the pollution from carbon dioxide (CO_2), carbon monoxide (CO), nitrogen oxide (NO_x), and hazardous particulates (PM). The environmental cost of carbon dioxide dominates the cost of the other components. Different estimates of the CO_2 cost are given by the EPA [81]. The cost of CO, NO_x , and PM depends on state laws. The lowest value and highest value used for the cost of CO, NO_x , and PM were chosen from the state of Minnesota [103]. It has been hypothesized that if conventional energy sources are being used to produce electricity in the future, the effects on environment are going to worsen (e.g. lower quality fuel, higher embodied energies, etc.), therefore the environmental cost will be expected to increase. This will be investigated by raising the environmental cost while analyzing the sensitivity of VOS to the environmental cost. This will show the trend of the impact of the environmental cost on the VOS and in the future, the values will need to be updated because the environmental cost is likely to exceed the maximum used value in this study.

3.5. Health liability cost

The health liability cost is a new calculated VOS component introduced by this study. This component has been mentioned by several studies but was not incorporated in the calculation due to lack of data for the evaluation [57,66,67,104]. The health and mortality impacts of coal in particular are so severe an ethical case can be made for the industries elimination [105]. For example, Burney estimated that 26,610 American

lives were saved between 2005 and 2016 by a conversion of coal-fired units to natural gas in the U.S [106]. More lives as well as non-lethal health impacts would be avoided with a greater transition from coal to solar [70]. The values used here were obtained from the study of [91] that found the value of health impact cost of natural gas to be \$0.025/kWh. As previously hypothesized, the use of fossil fuel energy sources in the future will increase the emissions, and the cost of health care has been escalating faster than inflation [106] thus increasing the cost of derived health liability. Several increase rates will be investigated. Although it should be pointed out the approach taken here was extremely conservative as the potential for climate/greenhouse gas emission liability [107,108] was left for future work as discussed below.

3.6. Other parameters

The other parameters are utility related and in case of absence of utility data, generic values from the U.S. government agencies is used as indicated in Table 1 and run through realistic percent increases or decreases to determine their effect on the VOS components.

3.7. Sensitivity analysis

A sensitivity analysis has been run on each of the nine VOS components as well as on the VOS. For each component, the sensitivity has been analyzed for some of its parameters wherever data was available. The evaluation of the variability of the VOS components has been performed for each parameter. The sensitivity of a component to one of its parameters is determined by maintaining an average value of the other parameters and varying the studied parameter from its lowest value to its highest value. The different values that are obtained for the VOS component are then plotted to show its variation according to the parameter studied. A correlation study between the different parameters

has not been conducted because there was no evident relationship between these parameters. Most of the parameters are set by the utilities and is often not disclosed openly. An interaction study between the parameters and how their interaction affects the VOS components would be interesting for future studies where utility data are available.

A similar process has been used for the sensitivity analysis of the main VOS. The main VOS's variability has been studied according to the nine VOS components. For each component for which the sensitivity of the VOS is analyzed, average values of the other components are maintained while the studied component's value is varied from its lowest value to its highest value.

4. Results and discussion

The simulation results are plotted first for each VOS components. For each component, sensitivities on the different input variables have been investigated. Then the sensitivity of the overall VOS to each of the VOS components has been analyzed.

4.1. Avoided O&M fixed cost (V_1)

Fig. 1 shows the results for the avoided O&M fixed cost (V_1). The sensitivity has been plotted for five parameters: the utility O&M fixed cost, the utility O&M cost escalation, the PV degradation rate, the utility discount rate, and the utility degradation rate. According to the results, the avoided O&M cost is highly sensitive to the utility O&M fixed cost and O&M cost escalation. When the utility O&M fixed cost increases, the avoided O&M cost increases accordingly and an increase in the O&M escalation rate obviously increases the avoided O&M cost because it increases the utility fixed O&M cost over the analysis period. V_1 is also sensitive to the utility discount rate and decreases when the discount rate increases. This means that using a discount rate close to the social

discount rate while conducting a VOS study will increase the avoided O&M cost while using a higher discount rate will lower the cost. This is in accordance with the recommendation of [57] that is the use of a discount rate lower than that of the utility in a distributed solar generation economic calculation. Also, the avoided O&M fixed cost is not very sensitive to the utility degradation rate or the PV degradation rate. Nevertheless, its value is slightly reduced when the PV degradation rate increases.

4.2. Avoided O&M variable cost (V_2)

The parameters for which the avoided O&M variable cost's (V_2) sensitivity has been studied are: the utility O&M variable cost, the utility O&M cost escalation, the PV degradation rate, and the utility discount rate. The sensitivity of the avoided O&M to its parameters are plotted in Fig. 2. Fig. 2 shows a similar variation trend of V_2 as compared to the case of the avoided fixed O&M cost. It is highly sensitive to the utility variable O&M cost, and the O&M cost escalation. The avoided variable O&M cost increases when the variable O&M, or the O&M cost escalation rate is increased but decreases with the increase of the discount rate, and the PV degradation rate.

4.3. Avoided fuel cost (V_3)

In the case of the avoided fuel cost (V_3), the variable considered for the sensitivity analysis are the heat rate degradation rate, the natural gas price fluctuation rate and the PV degradation rate. While the avoided fuel cost has shown to be not very dependent on the heat rate degradation rate or the PV degradation rate, this value changes very quickly with a change in the natural gas price as in Fig. 3. This is an important factor that should be carefully considered while conducting a VOS study because the price of natural gas is not fixed and varies according to

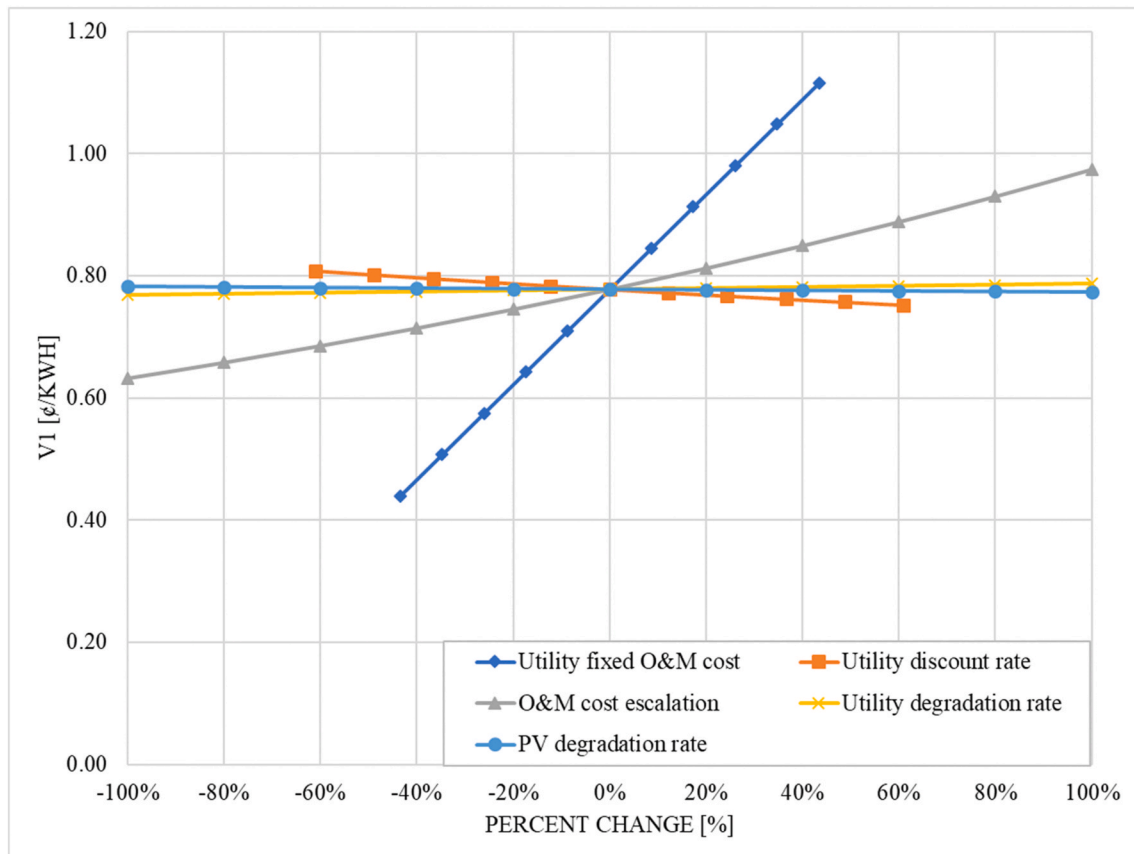


Fig. 1. Sensitivity of avoided O&M fixed cost (V_1) in terms of LCOE (¢/kWh) to its parameters in percent change.

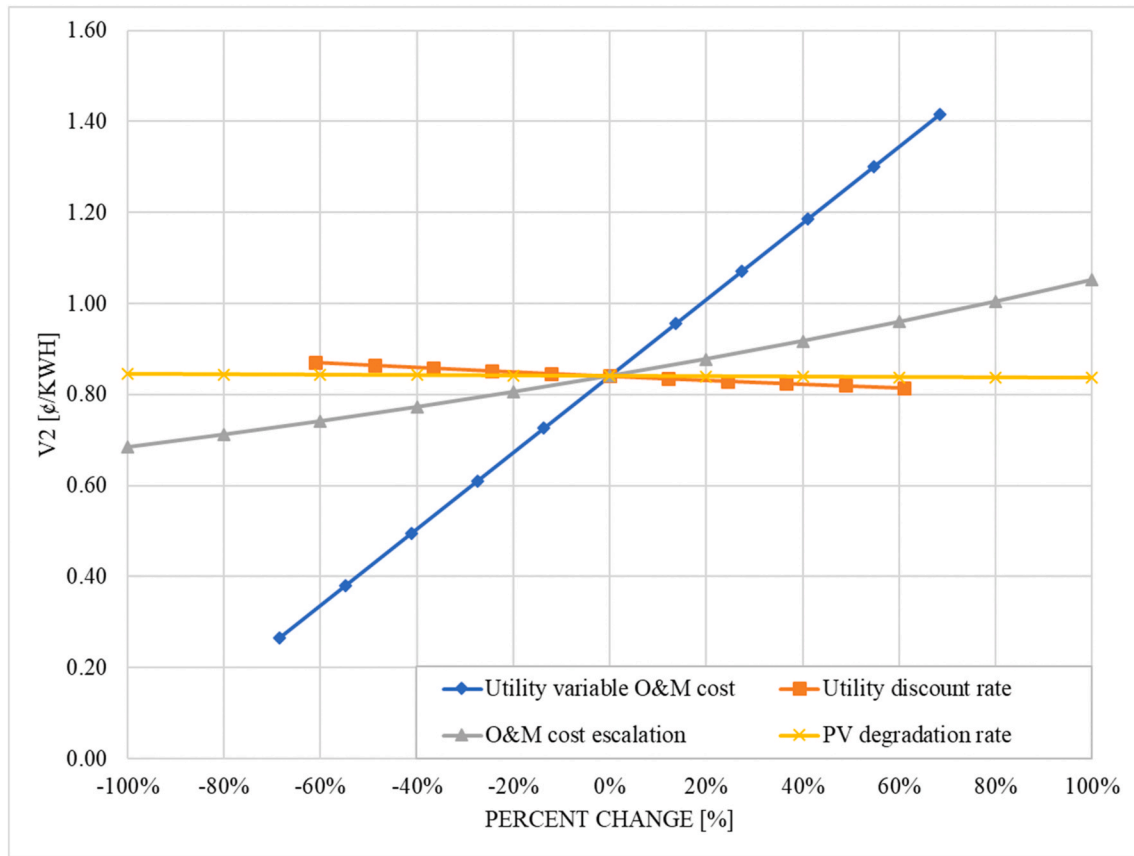


Fig. 2. Sensitivity of avoided O&M variable cost (V_2) in terms of LCOE (¢/kWh) to its parameters in percent change.

several parameters that are not controlled by the utility such as, the economy, the weather, market supply and demand [109,110]. The equivalent heat rate degradation rate expresses the degradation of the utility plant's efficiency over the analysis period and when the efficiency decreases, there is a slight decrease in the avoided fuel cost. Another value for which the avoided fuel's sensitivity could have been studied is the equivalent heat rate for solar, which was not analyzed in detail here because of the lack of utility data. This is left for future work.

4.4. Avoided generation capacity cost (V_4)

The sensitivity of the avoided generation capacity cost (V_4) has been plotted in Fig. 4 for the discount rate, the utility degradation, and the PV degradation rate. The V_4 VOS component does not have a high variability to the PV degradation rate even though it shows a decreasing trend with the increase of PV degradation. But it reacts sharply to the utility degradation rate. This is because the generation capacity of the utility is highly impacted by the utility degradation. Also, as previously observed, when the discount rate grows far from the social discount rate, the avoided generation capacity cost decreases.

4.5. Avoided reserve capacity cost (V_5)

The avoided reserve capacity cost (V_5) expresses the reserve component of the generation capacity; therefore, it can have a value of zero when there is no reserve capacity planned by the utility as shown in Fig. 5. V_5 is highly sensitive to the reserve margin and the result shows that the more generation capacity is reserved, the more the avoided generation capacity cost increases. On the other hand, the avoided reserve capacity cost is not very sensitive to the discount rate compared to its sensitivity to the other parameters. V_5 's value goes up when the utility degradation rate increases and goes down when the PV

degradation rate increases.

4.6. Avoided transmission capacity cost (V_6)

Three parameters have been analyzed in the sensitivity study of V_6 : the discount rate, the transmission capacity cost, and the PV degradation rate. The parameter it is the most sensitive to is the transmission capacity cost. Obviously, when the transmission is low cost in a location, the avoided cost associated will be low. The results shown in Fig. 6 make it clear that the avoided transmission capacity cost does not change with the PV degradation rate or the discount rate. This is because the utility transmission capacity has been assumed to be constant over the analysis period, and the transmission capacity degradation rate has not been considered because utility data on this parameter was not available.

4.7. Avoided distribution capacity cost (V_7)

The avoided distribution capacity cost (V_7) is one of the most complicated VOS components to evaluate. As shown in Fig. 7, its sensitivity has been studied for six variables: the load growth rate, the distribution capacity, the distribution capacity cost, the utility discount rate, the distribution cost escalation, and the PV degradation rate. But it depends on more than six parameters. The growth rate, for example is calculated from utility data, mainly, the load for the past ten years of operation [45,111]. Here, the sensitivity has been analyzed on the growth rate directly to be as widely applicable as possible. Another parameter is the number of deferred years that is also a utility owned data.

The avoided distribution capacity cost naturally increases with the distribution capital cost. Fig. 7 shows that the avoided distribution capacity cost does not fluctuate with the distribution capacity at all, but it is highly sensitive to the discount rate, the distribution cost, and the

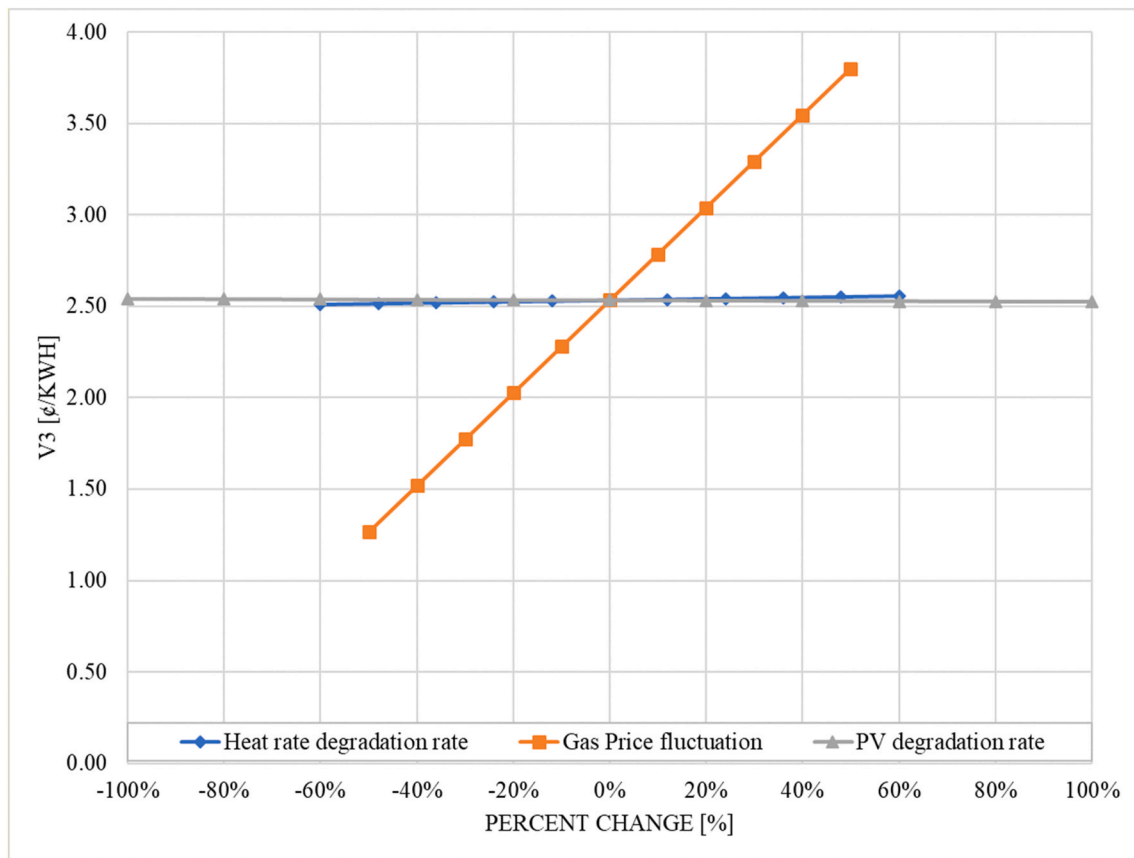


Fig. 3. Sensitivity of avoided fuel cost (V_3) in terms of LCOE (¢/kWh) to its parameters in percent change.

distribution cost escalation rate. It can even shift to a negative value when the discount rate is too low. This shows that choosing the discount during a VOS study must be a trade-off between the social discount rate and the utility discount rate. It is interesting to note that the avoided distribution capacity cost goes down when the distribution cost escalation is increasing. A possible explanation for this observation is that when a utility has enough distribution capacity, it will purchase less power from solar PV systems owners, therefore the price goes down. The same reasoning can be used to explain the decreases of the cost when the load growth goes up. Finally, V_7 shows a slight decrease with the increase of the PV degradation rate.

4.8. Avoided environmental cost (V_8)

The second most complicated component of the VOS calculation is the avoided environmental cost (V_8). The sensitivity has been analyzed for the three environmental discount rate scenarios provided by the EPA [81]. For each scenario, a sensitivity analysis has been conducted on the environmental cost increase rate. V_8 will increase when the chosen environmental discount rate is low but overall, each of the three EPA scenarios show an increase when the environmental cost increase rate goes up as seen in Fig. 8. This is useful to see how the avoided environmental costs might change in the future. Environmental externalities are volatile and changing quickly [66]. If it is assumed that in the future, the environmental impact of conventional energy production technologies will increase, then the costs of the environmental externalities will increase as well [104]. On the other hand, an increase in distributed renewable energy generation could lead to a decrease or stabilization of the avoided environmental cost.

4.9. Avoided health liability cost (V_9)

The avoided health liability cost, V_9 , depends on three values, the health cost increase rate, the environmental discount rate, and the PV degradation (see Fig. 9). This cost does not fluctuate with the PV degradation rate but is very sensitive to the other two parameters. The environmental discount rate used here is the same as the environmental discount rate used in the evaluation of the avoided environmental cost's sensitivity study. As a result, the avoided health liability cost decreases when the environmental discount rate goes up as is the case for the avoided environmental cost.

4.10. VOS

After the sensitivity analysis of each VOS component, the main VOS value has been studied to find out how the impact of different components compare to one another and which components have more variability. Fig. 10 shows that the VOS is, in decreasing order, sensitive to the avoided environmental cost (V_8), avoided health liability cost (V_9), avoided transmission capacity cost (V_6), avoided fuel cost (V_3), avoided distribution capacity cost (V_7), avoided O&M variable cost (V_2), avoided reserve capacity cost (V_5), avoided O&M fixed cost (V_1), and avoided generation capacity cost (V_4).

The contribution of each VOS component to the overall VOS depends on the case. The lowest VOS value calculated with the assumptions used in this study in term of LCOE is 9.37¢/kWh while the highest value calculated is 50.65¢/kWh. This variation observed in the VOS value comes from the fact that the parameters values considered from this study are chosen to have the lowest and the highest value of a VOS. The values of calculated VOS using utility data are highly likely to be located within this interval. It is also clear based on the values shown in Fig. 10, that the VOS exceeds the net metering rates (when they are even

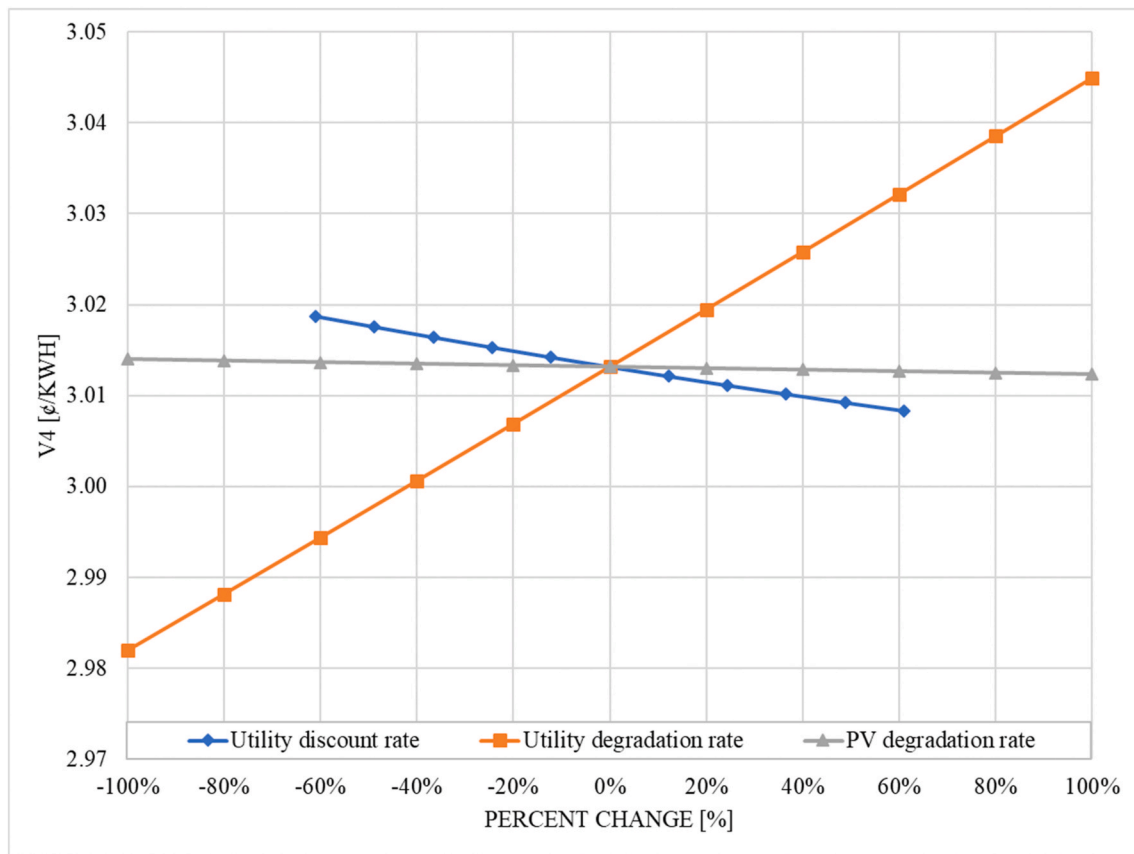


Fig. 4. Sensitivity of avoided generation capacity cost (V_4) in terms of LCOE (¢/kWh) to its parameters in percent change.

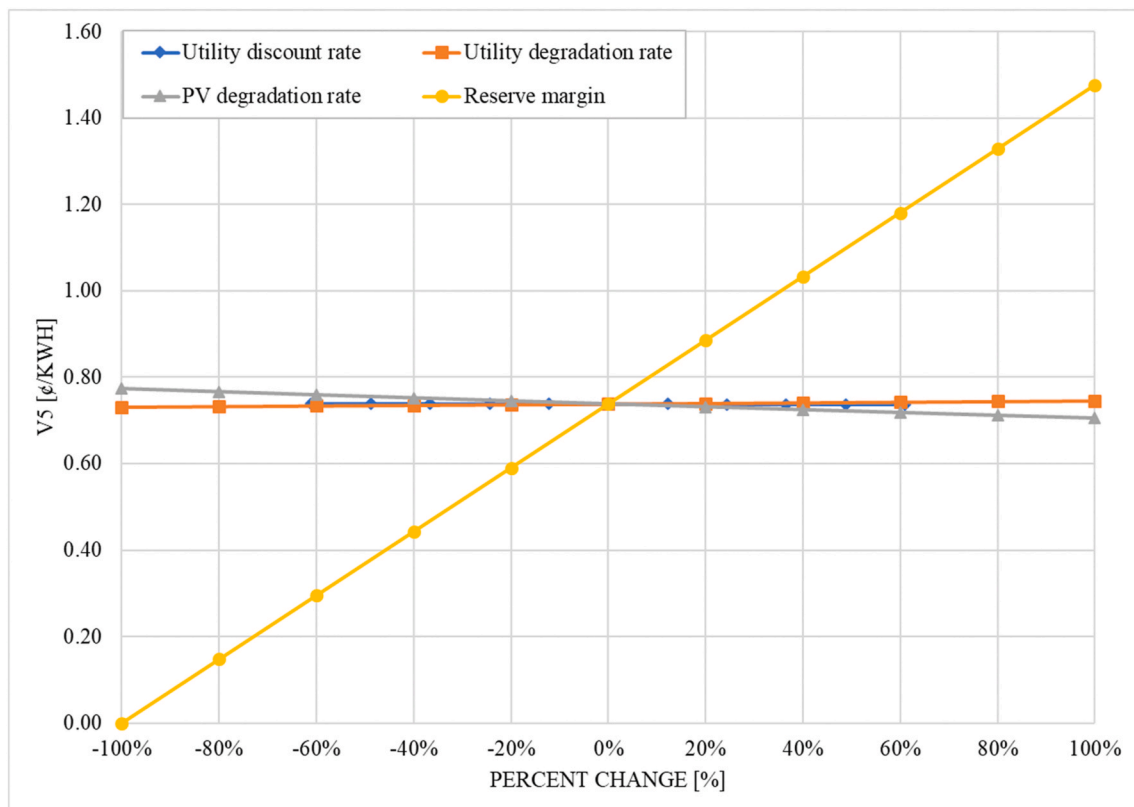


Fig. 5. Sensitivity of avoided reserve capacity cost (V_5) in terms of LCOE (¢/kWh) to its parameters in percent change.

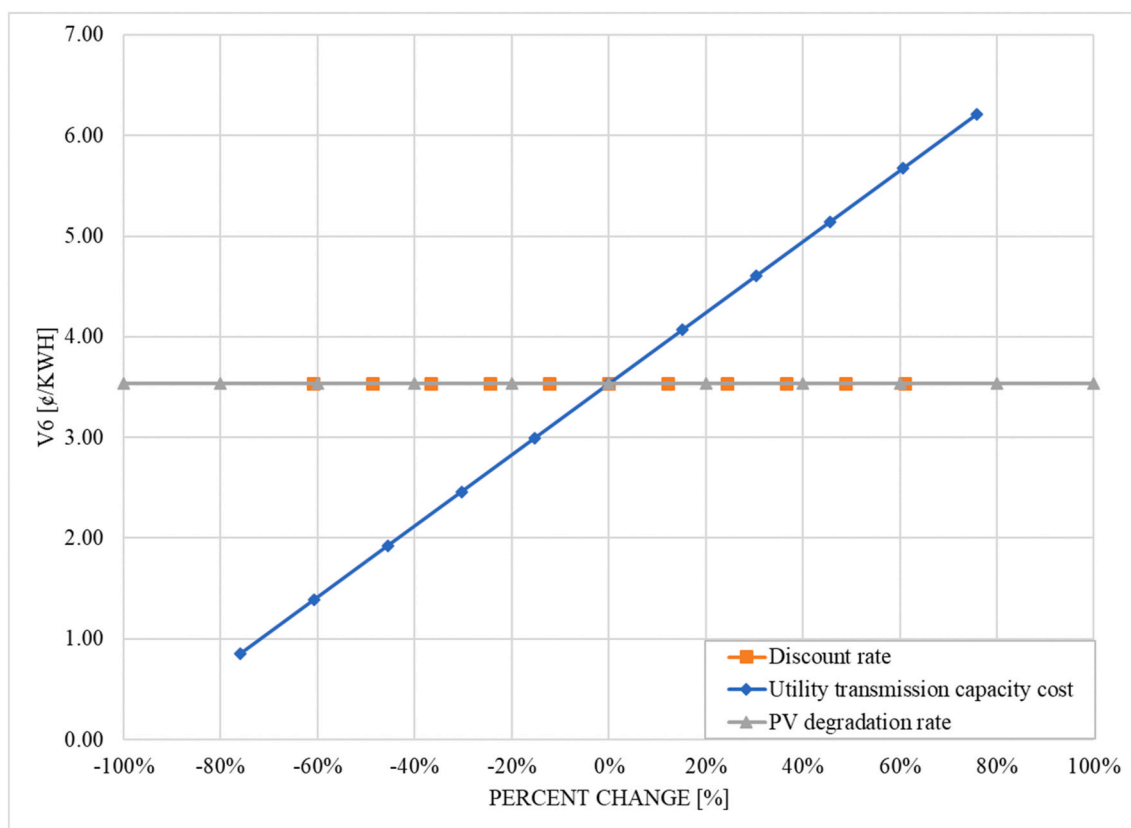


Fig. 6. Sensitivity of avoided transmission capacity cost (V_6) in terms of LCOE (¢/kWh) to its parameters in percent change.

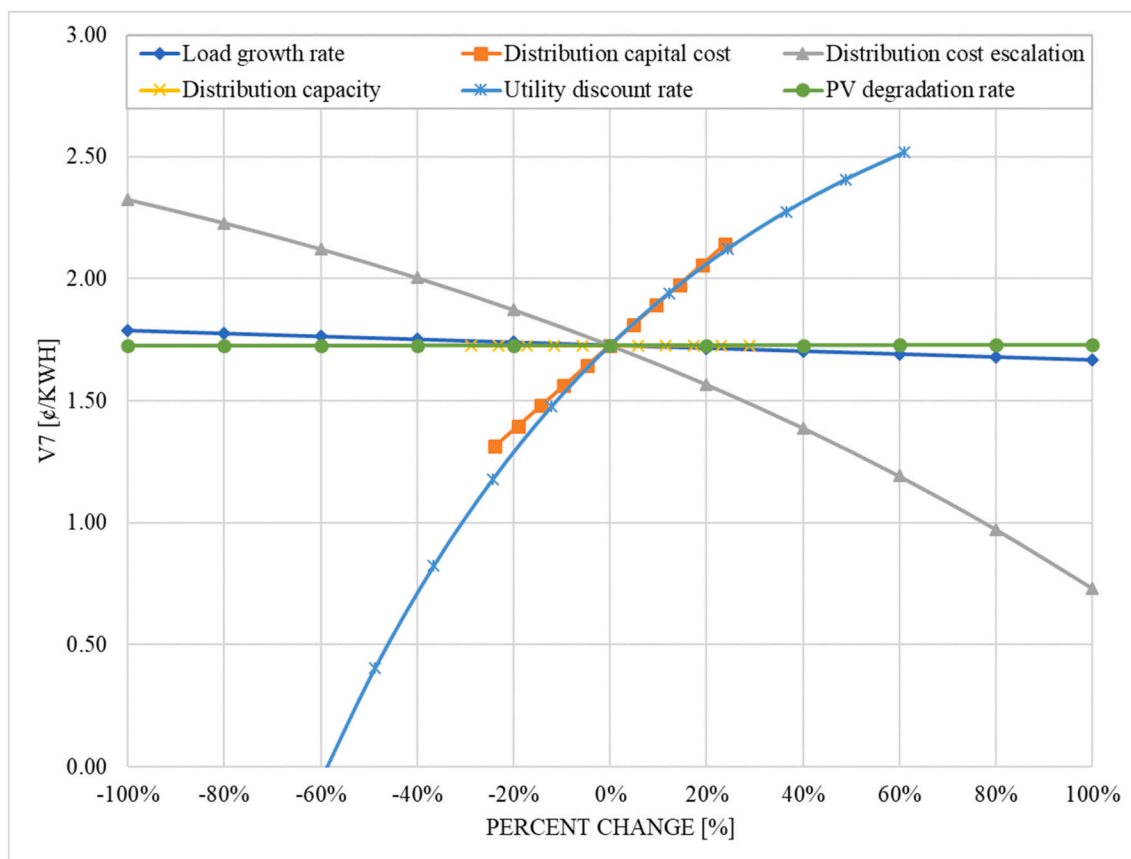


Fig. 7. Sensitivity of avoided distribution capacity cost (V_7) in terms of LCOE (¢/kWh) to its parameters in percent change.

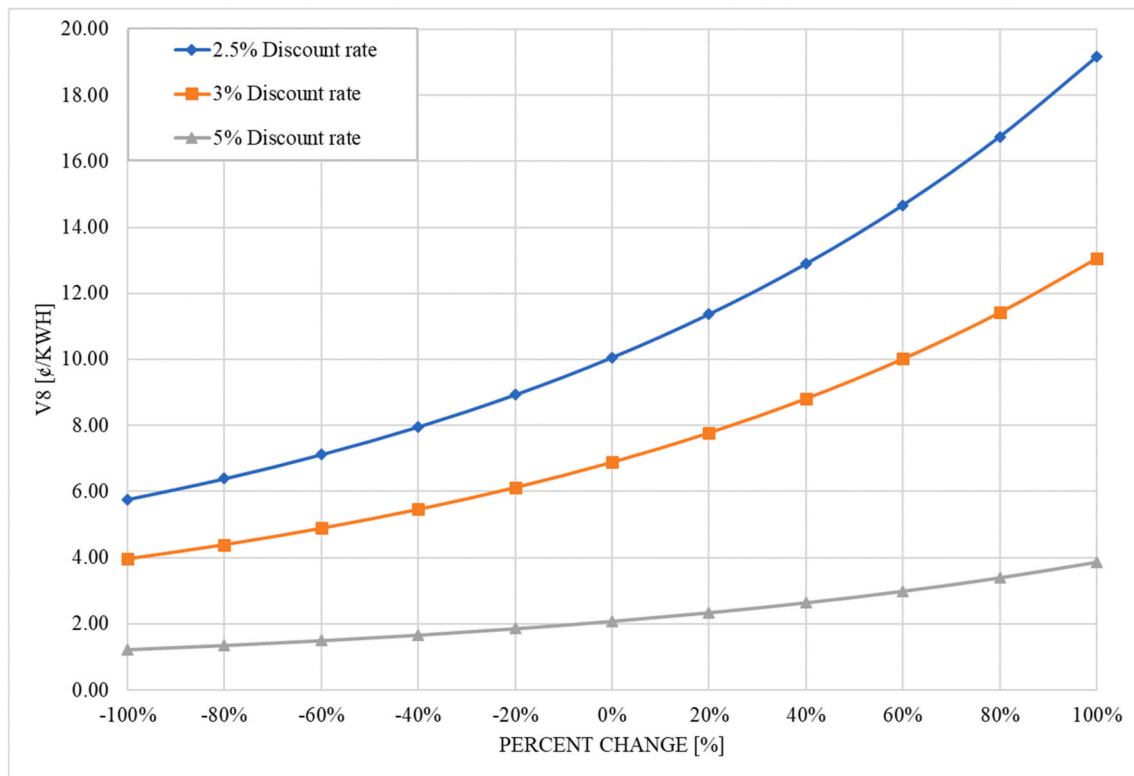


Fig. 8. Sensitivity of avoided environmental cost (V_8) in terms of LCOE (¢/kWh) to its parameters in percent change.

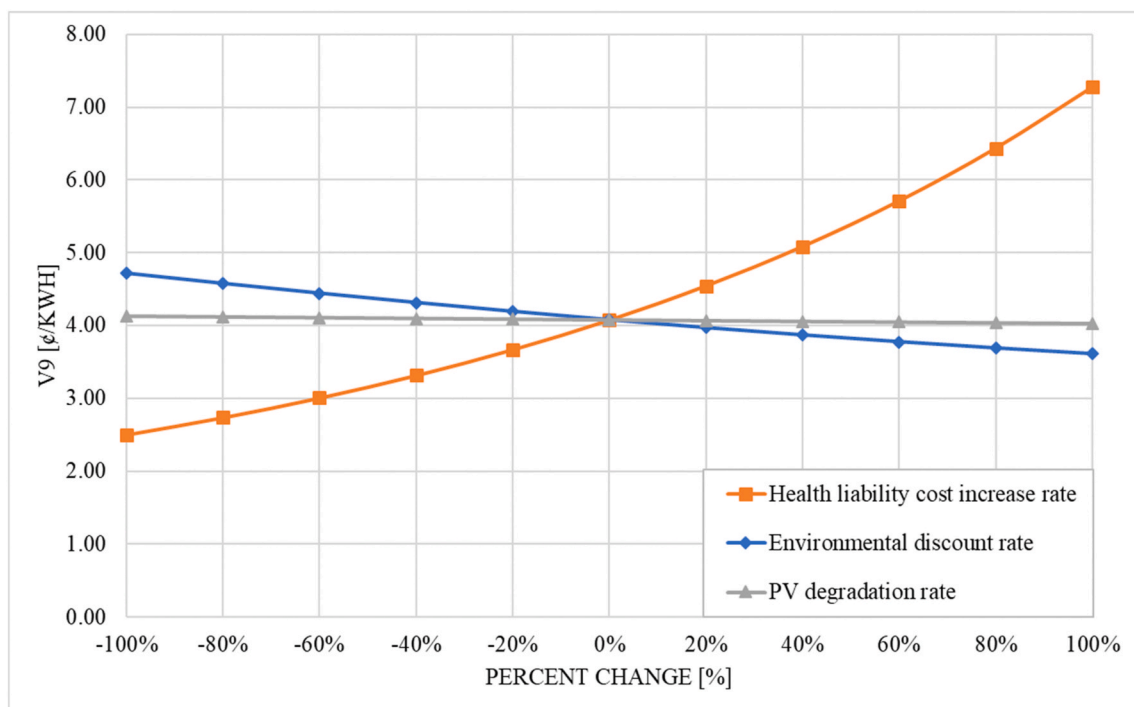


Fig. 9. Sensitivity of avoided health liability cost (V_9) in terms of LCOE (¢/kWh) to its parameters in percent change.

available as shown in Table 2) in the U.S. Thus, it can be concluded that even when grid-tied solar owners are provided with a full net metered rate for electricity fed back onto the grid they are effectively subsidizing the electric utility/other customers.

For the low VOS value case shown in Fig. 11, the avoided distribution cost (V_7), and the avoided reserve capacity cost (V_5) has no contribution

in the VOS value. The avoided generation capacity cost (V_4) and the avoided health liability cost (V_9) represent most of the VOS value followed by the avoided environmental cost (V_8) and avoided fuel cost (V_3).

The contribution of the avoided environmental (V_8) cost increases with the VOS value as it becomes the largest contributor to the overall

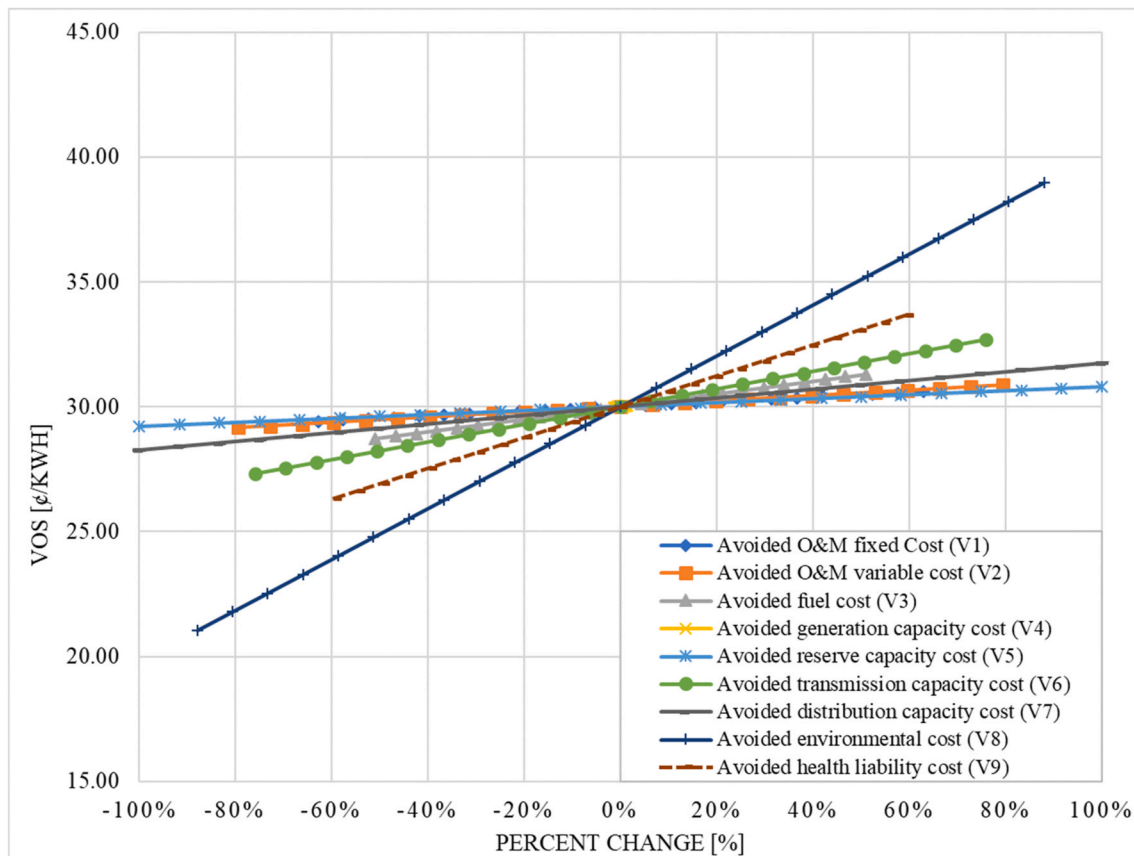


Fig. 10. Sensitivity of VOS LCOE (¢/kWh) to all the components in this study, in percent change.

Table 2
Comparison of VOS rates and net metering rates for some U.S. States.

State	VOS	Net Metering
Minnesota	13.5¢/kWh	
Austin (Texas)	10.7¢/kWh	Approximately 4–5¢/kWh (1.2–1.6\$/kWh) [113]
Maine	33.7¢/kWh	12.16–14.66¢/kWh [114]
New Jersey	25.6–28¢/kWh	
Pennsylvania	28.2–31.8¢/kWh	Minimum value of (4¢/kWh) [115]
Washington D. C.	19.4¢/kWh	

value followed by the health liability (V_9) cost as shown in Fig. 12 representing a middle VOS value. The avoided generation capacity cost's (V_4) is reduced as well as the contribution of the avoided fuel cost (V_3).

Fig. 13 represents the contribution of each of the VOS components to the overall value in the case of the highest obtained value in the scope of this study. The avoided environmental cost (V_8), avoided health liability cost (V_9), and avoided transmission capacity cost (V_6) represent 69% of the total cost.

The evolution of the cost percentage contribution of each VOS throughout Figs. 11, Figure 12, and Fig. 13 shows the level of uncertainty of the VOS in respect to the corresponding component.

The lowest and highest LCOE VOS values obtained from the assumptions made in this study are respectively 9.37¢/kWh and 50.65¢/kWh. The existing VOS studies results fall into this interval. The sample calculation made by Ref. [45] for Minnesota is 13.5¢/kWh while [46] calculated a VOS of 10.7¢/kWh for Austin Energy. These values are in the lower spectrum of the result of this study because of the considerations made. They incorporate less VOS components than the present

study, and this study focuses on sensitivity, therefore higher values of parameters have been considered. Other results summarized by Ref. [47] have found the VOS to be 33.7¢/kWh in Maine, between 25.6 and 31.8¢/kWh in New Jersey and Pennsylvania [48], and 19.4¢/kWh in Washington DC. In general, the VOS is much higher than the net metering costs as even the highest costs observed at the residential level pay [50,62,112]. The residential net metering rates are also the highest as compared to commercial and industrial rates so the latter two are even more unjustly compensated for installing solar. Overall, this indicates that utilities are under-compensating customers with grid-connected PV systems if they are only paying net metering rates, as displayed in Table 2. Table 2 shows a comparison between VOS rates and net metering rates in the U.S. states mentioned above, wherever data is available. As only a tiny fraction of utilities (3%) are paying full net metering rates anyway [43], there is a need for regulators to ensure that solar customers are being adequately compensated for the value of solar electricity they are sharing with the grid [42]. Substantial future work is needed to ensure that solar PV owners are not subsidizing non-solar electricity customers.

5. Future work

This study has covered a vast number of existing VOS components, but some components were not included in this study due to the lack of a reliable evaluation methodology. These components include the economic development cost, the avoided fuel hedge cost, and the avoided voltage regulation cost. These represent opportunities for future work once the evaluation methodologies have been developed. Also, there are some parameters sensitivities that would provide insights with multiple utility data sets. These parameters include the analysis period, the hourly solar heat rate and solar PV fleet, and the 10-years load profile. Future studies can focus on incorporating the sensitivities of these

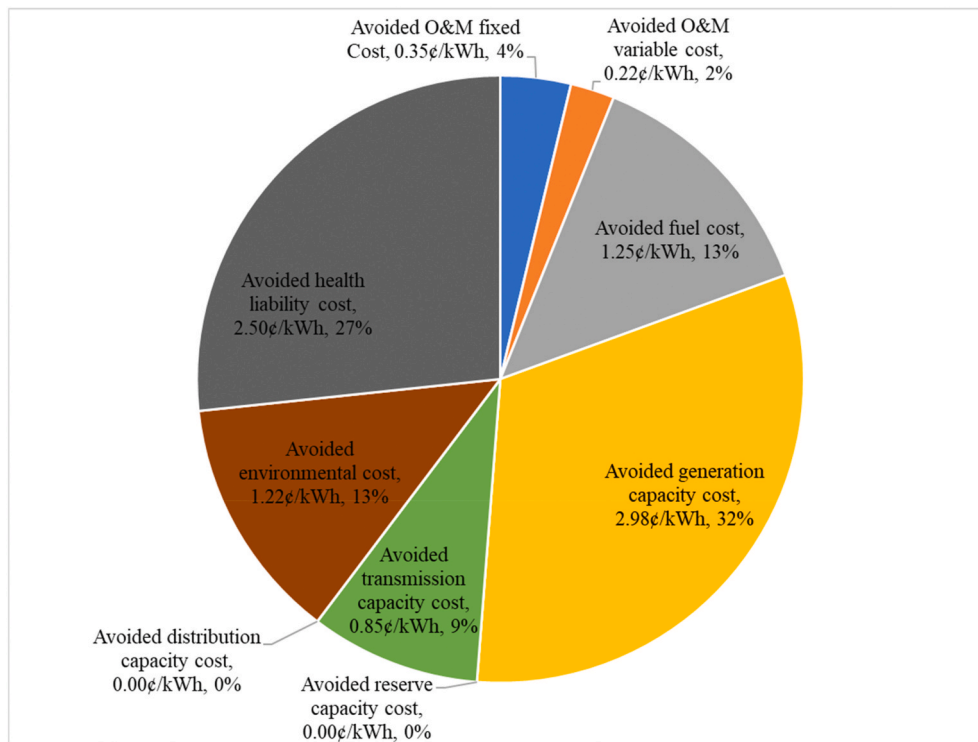


Fig. 11. Contribution of each VOS component to the overall VOS LCOE – Low Cost Scenario.

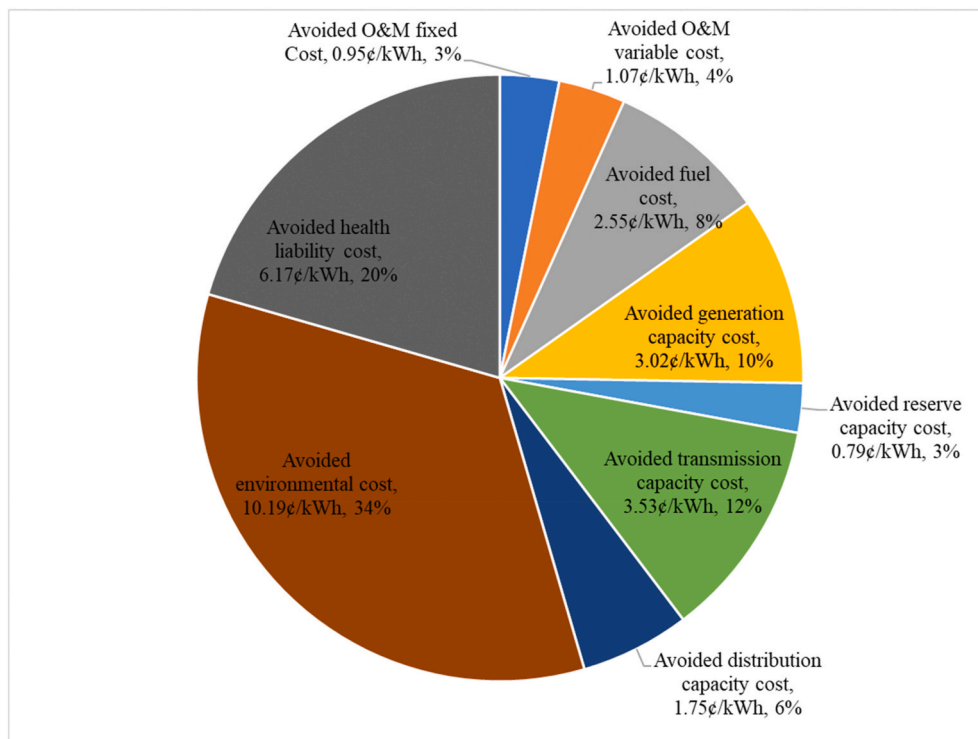


Fig. 12. Contribution of each VOS component to the overall VOS LCOE – Middle Cost Scenario.

parameters into the model or can use the foundation of this model to build on new VOS studies according to a specific location and available data from utilities. Another limitation to this study is that it does not include the effect of the load match factor, and loss saving factor.

As the results show the environmental and health costs can dwarf the technical costs and thereby determine the VOS. There are also second

order effects that can be used to obtain a more accurate VOS values. For example, the negative impact of pollution from conventional fossil fuel electricity generation on crop yields [106] as well as PV production could also be considered in future work to give a more accurate V_8 . In addition, as greater percentages of PV are applied to the grid the avoided costs will change and there is a need for a dynamic VOS akin to dynamic

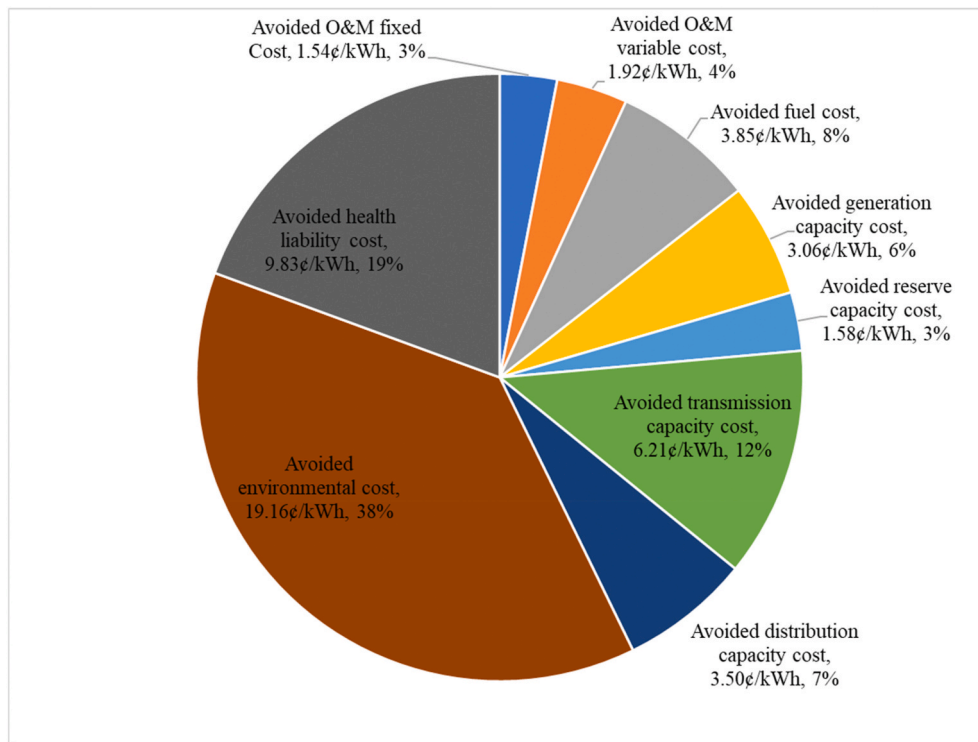


Fig. 13. Contribution of each VOS component to the overall VOS LCOE – High Cost Scenario.

carbon life-cycle analyses needed for real energy economics [116]. This complexity will be further enhanced by the introduction of PV and storage systems [117] as it will depend on size [118] and power flow management and scheduling [119,120].

Perhaps the most urgent need for future work is accurate estimations of the value of avoided GHG liability costs because the magnitude of the potential liability [107,108] could overwhelm other subcomponents of the VOS. This is because as the realities of climate change have become more established, a method gaining traction to account for the negative externalities is climate litigation [107,108,121–131]. For utility VOS analysis this is particularly complex as it is difficult to know where to draw the box around environmental costs. As some studies have concluded there is liability for past emissions as well as for harm done in other nations [122]. Liability for disastrous events is also challenging to predict [126]. Combining both other nations and disaster creates liability potential that could become enormous with prioritization given to victims that are losing their land, culture, and lives due to climate change [127]. Tort-based lawsuits are already possible from a legal point of view [126], but there are other legal methods that could be used to reduce climate change such as public nuisance laws [128]. Some authors have argued a ‘polluters pay principle’ for carbon emissions [129]. Other studies have concluded that emitters such as conventional fossil fuel power plant operators should be forced to buy long term insurance in order to cover their share of climate change costs for minimizing risks in case of insolvencies [130]. Determining what such insurance premiums should be is another area of substantial future work. Determining what the greenhouse gas liability costs are for conventional electricity generators (as well as potential avoided insurance costs) that can be avoided with PV is extremely challenging. These estimates will become easier with time as climate change impact studies become more granular thereby assigning specific costs to specific amounts of emissions. In addition, realizing these climate liability costs in courtrooms will become more likely. As Krane points out it is clear that as the negative impacts of climate change grow more pronounced, the fossil-fuel based electricity industry faces a future that will be less accepting of current practices and that will increase economic (and

maybe even industry existential) risks [131]. Avoiding these risks has real value, which should be included in the VOS in the future.

6. Conclusions

This study demonstrated a detailed method for valuing the incorporation of solar PV-generated electricity into the grid and analyzed the sensitivity of each VOS component to its input parameters, and the overall sensitivity of the VOS to the each of its components. Several components have been found to be sensitive to the utility discount rate, namely the avoided O&M fixed cost; avoided O&M variable cost; avoided generation capacity cost, and the avoided distribution capacity cost. Except for the avoided distribution capacity, the other components’ value decreases with the increase of the utility discount rate. The distribution capacity is more sensitive to the discount rate than the other components. It increases with the discount rate and can be negative if the discount rate is very low. This has shown the necessity of carefully choosing the discount rate for VOS studies. Most of the VOS values do not have a high variability to the solar PV degradation rate even though its increase slightly reduces the value of each component, and the overall VOS. The environmental cost and the health liability cost are sensitive to the cost increase rate that can be tied to the emissions impact of the conventional energy sources. These two costs are likely to increase in the future with the worsening of the emission of fossil fuel sources and more information about its effects, which increases potential emissions liability for utilities. Finally, specific case studies could provide additional sensitivities on the few areas of the VOS that were not evaluated in this paper to create better VOS models. Overall the results of this study indicate that grid-tied utility customers are being grossly undercompensated in most of the U.S. as the value of solar eclipses the net metering rate. The implications of this sensitivity analysis demand a reevaluation of the compensation for U.S. PV prosumers as the VOS is much higher than net metering or any lesser compensation schemes. Substantial future work is needed for regulatory reform to ensure that solar owners are not unjustly subsidizing U.S. electric utilities. In addition, future work can obtain an even more accurate (and higher) value of

VOS by evaluating economic development costs, the avoided fuel hedge costs, the avoided voltage regulation costs, secondary health and environmental effects such as increased crop yields from PV-reduced pollution, and accurate estimations of the value of avoided GHG liability costs or avoided GHG emissions liability insurance.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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From: [Steve Uhler](#)
To: [Brandon Rose-Contact](#)
Cc: [Public Comment](#); [Laura Lewis](#); [Nancy Bui-Thompson](#)
Subject: [EXTERNAL] Perhaps SMUD staff are not aware I am attending the meeting, just can call using the phone number provided by SMUD 1-669-524-5252
Date: Tuesday, August 31, 2021 6:41:08 PM

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Director Rose,

Perhaps SMUD staff are not aware I am attending the meeting, just can call using the phone number provided by SMUD 1-669-524-5252

Please confirm the SSR requirement the renewable generation facility has to be eligible for certification as a renewable energy source as defined by the CEC.

In my written comment I have submitted the CEC's RPS Eligibility Guidebook, where on pdf page 11 the CEC clarifies the WREGIS approval requirement for certification approval.

CEC requires the facility to be registered and approved in WREGIS. This WREGIS registration has a fee of \$50.00 per year.

The registration will also mean the excess energy SMUD receives will be considered null power that SMUD will have to match with REC of RPS compliance.

This will increase the costs for the PV owner \$50 per year.

Other customers are burdened with the REC costs for RPS compliance for the null power SMUD receives from the PV owner excess generation.

Thanks for relating my comments at the hearing,

Steve Uhler
sau@wwmpd.com

A Few Thoughts

- Modeling mostly agreed – but many assumptions
- Payback is a simple metric and a function of total costs
- Payback is sensitive to inputs:
 - System cost per watt (~\$3.00)
 - Storage cost (~\$10k)
 - Self-consumption assumption (85%/15%)
 - Rate growth (~2%)
 - Financing cost (down payment, ~10 yrs, 3%)
 - Incentives

Payback sensitivity illustrative examples:

7KW@\$3.20, Storage \$12K, Rate \$.15, VPP \$2500, Finance 3% - 15 years

Changes:

- @\$2.90 - 14 years
- @\$2.90, \$9,000 storage - 13 years
- @ \$3.00, \$1050 down payment (5%) – 13 years
- @ \$3.00, VPP \$3500 – 13 years
- @ \$3.00, \$1050 down payment (~5%), VPP \$3500 – 12 years
- @ \$3.00, no financing – 10 years

- How will costs change with time?
 - Panels, Balance of System and Permitting/Business
 - Battery cost reductions and short-term market volatility
 - Business strategies and integration
- How long should payback be?
 - Core policy question – IRR or Simple payback
 - Sales sensitive to this
 - How to balance short and long term thinking?
- How much of a change is this?
 - Depends on starting assumptions
 - ~15-25% reduction?

- Managing Risks
 - Sales slow down damaging industry's viability
 - Ongoing monitoring?
 - Unequal allocation of SMUD's fixed cost?
- Rate versus program
 - Rate: Basic structure and export rate, start date, max system size, requires that storage incentive recipients must be in the new rate.
 - Program: Incentive amounts, connection fees, VNEM, Grandfathering?

From: Mark Graham <mark@freewayblogging.com>

Sent: Tuesday, August 31, 2021 9:29 PM

To: Rates <Rates@smud.org>

Cc: Brandon Rose-Contact <brandondrose@hotmail.com>; Nancy Bui-Thompson <Nancy.Bui-Thompson@smud.org>; gbfishman@gmail.com; Rosanna J. Herber <Rosanna.Herber@smud.org>; Rob Kerth External <rob@kerth.us>; davetamayo2@gmail.com; Heidi Sanborn <Heidi.Sanborn@smud.org>

Subject: [EXTERNAL] Please read my public comments on agenda item 4.

CAUTION: This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Board members and staff,

This meeting is long and I am about to hang up.

This email contains my public comments on agenda item 4, items not on the agenda.

Will you read these comments aloud during agenda item 4? They are 402 words, which will fit within my 3 minutes.

Thank you.

Mark Graham

Sent from my hard wired computer

P.S. Here are my public comments on agenda item 4.

Regarding my pending lawsuit over the current rates, you are going to lose. You have a smart and experienced attorney defending you, Ryan Dunn, and you have a weak, poor case. There is nothing your attorney can do about that. We have asked the court for an order striking down your current rates and charges. This is a reverse validation lawsuit. Look it up. We have also asked for an order for SMUD to refund the part of your rates that are taxes, about 9.2%, to all of your customers. I am not an attorney but I understand this area of law and civil procedure. We are going to win this lawsuit, you are going to lose, you're going to have egg on your face. It will be because you, Board members, blindly accepted the false and irrelevant claims of your staff and you didn't take this issue seriously. You accepted conclusory statements of your attorney, Ms. Laura Lewis, and you didn't ask specific questions, such as what is the legal basis for SMUD putting a fudge factor known as a scalar into your rates.

Laura Lewis is a smart attorney and would answer your specific questions if you asked them.

You didn't read the 2018 residential rate design study. You failed in your responsibility as a Board member. Which is a shame because there are a few of you on this Board whose hearts and minds are in the right places. Just a few. Unfortunately all of you continue to run this District as a private club. It is not your private club.

Regarding meeting your budget requirements you are NOT allowed, by Article XIII C, to set your rates to meet your budget requirements. Look up Capistrano Taxpayers Association vs. City of San Juan Capistrano, the California Court of Appeals 4th District, case number G048969. It says you cannot set your rates based on pre-determined budgets.

Also, what Laura Lewis described is one of the fixed costs, which you already recover in your system infrastructure fixed charge. Two problems. You cannot recover your fixed costs twice, both in your rates per kWh and your System Infrastructure Fixed Charge. Also, fixed charges are not authorized by any California statute or case law.

SSS No.

E,S,RES 21-06

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date

Policy –September 08, 2021

Board Meeting Date

Board - September 16, 2021

TO					TO					
1.	Frankie McDermott				6.					
2.	Stephen Clemons				7.					
3.	Jennifer Davidson				8.					
4.					9.	Legal				
5.					10.	CEO & General Manager				
Consent Calendar		<input checked="" type="checkbox"/>	Yes	No <i>If no, schedule a dry run presentation.</i>		Budgeted	<input checked="" type="checkbox"/>	Yes	No <i>(If no, explain in Cost/Budgeted section.)</i>	
FROM (IPR) Patrick Durham				DEPARTMENT EDO - Env, Safety, and Real Estate Services				MAIL STOP H201	EXT. 6327	DATE SENT 08/23/2021
NARRATIVE:										
<p>Requested Action: Accept the monitoring report for Strategic Direction SD-7, Environmental Leadership.</p> <p>Summary: The purpose of this meeting is to facilitate a discussion with the SMUD Board of Directors on Strategic Direction (SD) -7, Environmental Leadership. The presentation will briefly summarize SMUD's internal and external environmental programs and initiatives that promote environmental leadership.</p> <p>Board Policy: Strategic Direction 7 - (Environmental Leadership), Strategic Direction 9 - (Resource Planning), and Strategic Direction 10 – (Innovation) <i>(Number & Title)</i></p> <p>Benefits: Clarification of environmental leadership, as defined in Strategic Directions 7 and 9, to better guide SMUD Staff's interpretation and actions to fulfill these Directions.</p> <p>Cost/Budgeted: N/A</p> <p>Alternatives: Do not provide a report to the Board.</p> <p>Affected Parties: SMUD</p> <p>Coordination: SMUD Environmental Services, Resource Planning, and Energy Strategy, Resource, & Development</p> <p>Presenter: Patrick Durham</p>										

Additional Links:

SUBJECT

ITEM NO. (FOR LEGAL USE ONLY)

6

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: August 31, 2021

FROM: Claire Rogers *CR 8/31/21*

**SUBJECT: Audit Report No. 28007342
Board Monitoring Report; SD-07: Environmental Leadership**

Audit and Quality Services (AQS) received the SD-07 *Environmental Leadership* 2020 Annual Board Monitoring Report and performed the following:

- A review of the information presented in the report to determine the possible existence of material misstatements;
- Interviews with report contributors and verification of the methodology used to prepare the monitoring report; and
- Validation of the reasonableness of a selection of the report's statements and assertions.

During the review, nothing came to AQS' attention that would suggest the SD Board Monitoring report did not fairly represent the source data available at the time of the review.

CC:

Paul Lau

Board Monitoring Report 2020

SD-7 Environmental Leadership



1. Background

Strategic Direction 7 ([SD-7](#)), Environmental Leadership states that:

Environmental leadership is a core value of SMUD. In achieving this directive, SMUD will:

- a. Conduct its business affairs and operations in a sustainable manner by continuously improving pollution prevention, minimizing environmental impacts, conserving resources, and promoting equity within SMUD's diverse communities.
- b. Provide leadership and innovation to improve air quality and reduce greenhouse gas emissions.
- c. Promote the efficient use of energy by our customers.
- d. Advance the electrification of vehicles, buildings, and equipment.
- e. Attract and build partnerships with customers, communities, policy makers, the private sector, and other stakeholders.

2. Executive Summary

SMUD's focus on environmental leadership is clearly evident in our 2030 Clean Energy Vision and Zero Carbon Plan, but it also includes transparent reporting of GHG emissions, natural resource stewardship and our concerted efforts to make all of our communities more sustainable. This report highlights some of the accomplishments SMUD achieved in 2020 to showcase our commitment to environmental leadership.

We are compliant with the five tenets of SD-7 and our successes include making CDP's (formerly known as the Carbon Disclosure Project) "A List" for tackling climate change, and incorporating environmental justice (EJ) into our California Environmental Quality Act (CEQA) process. A number of our staff and programs received distinguished recognition too, and our efforts are highlighted in the following Appendices: Appendix A (Examples of SMUD Efforts Supporting SD-7), Appendix B (2020 SD-7 Pamphlet), Appendix C (2015-2020 SMUD GHG Emissions Trends), Appendix D (Sustainable Communities), and Appendix E (Acronyms).

3. Additional Supporting Information

2030 Clean Energy Vision and Zero Carbon Plan

For decades, SMUD has been a leader in clean energy and carbon reduction. SMUD's goal is to eliminate carbon emissions from our power supply is more ambitious than the already aggressive state mandates and is ahead of virtually all other utilities in the United States. Our 2030 Zero Carbon Plan is a flexible road map to achieve our zero carbon goal while ensuring all customers and communities we serve reap the benefits of decarbonization.

Zero carbon emissions brings benefits not only globally, but also locally with reduced emissions GHG emissions, improving local air quality, job creation opportunities, and leadership move away from the use of fossil fuels.

Greenhouse Gas (GHG) Emissions

SMUD is a leader in addressing global climate change and is an active member of The Climate Registry (TCR). SMUD reports its third-party verified GHG emissions to the California Air Resources Board (CARB), TCR and CDP. Staff also reports sulfur hexafluoride (SF₆) emissions and aids with reporting GHG emissions from the Joint Power Authorities (JPAs) to the US Environmental Protection Agency (EPA).

For 2020, GHG emissions were approximately 1.925 million metric tons carbon dioxide equivalent (CO₂e)¹. This is an increase of about 229 thousand metric tons from 2019 emissions yet reflects an overall downward trend over the past six years (Appendix C). Fluctuations in total emissions year-to-year are primarily attributed to hydroelectricity production and natural gas contract rates. Lower hydroelectricity generation leads to higher utilization of SMUD's thermal power plants and increased purchased power leading to higher emissions. Over the past several years, SMUD's efforts to procure power from zero and low-emission sources (e.g., hydro, wind and solar) have resulted in a lower carbon footprint.

SMUD uses or supplements the use of biofuels at its thermal power plants to reduce our carbon compliance obligation and we generated approximately 189 gigawatt hours (GWh) of power from biofuels in 2020. Emissions from biofuels are typically considered "carbon-neutral" under several GHG reporting protocols including California's Cap-and-Trade Program.

CDP "A List"

SMUD was recognized for our leadership in corporate sustainability by global environmental non-profit CDP, securing a place on its prestigious ["A List"](#) for the first time. SMUD was recognized for its actions to cut emissions, mitigate climate risks, and develop the low-carbon economy based on reported data.

CDP's annual environmental disclosure and scoring process is widely recognized as the gold standard of corporate environmental transparency. SMUD is one of a small number of high-performing companies out of over 9,600 that were scored in 2020. Through significant demonstrable action on climate, SMUD is leading on environmental ambition, action, and transparency worldwide.

TCR Climate Registered™ Platinum Status

For the second year in a row, SMUD was awarded Climate Registered™ Platinum status by TCR, a non-profit organization which designs and operates voluntary and compliance GHG reporting programs. To date, SMUD has submitted over 10 years of verified inventories to TCR. Climate Registered™ Platinum level recognition is the second highest tier that can be achieved which SMUD earned by publicly reporting its

¹ The 2020 GHG emissions value represents emissions associated with delivering power to SMUD customers and does not include emissions associated with wholesales into the market. The 2020 emissions from wholesale power are approximately 0.327 million metric tons of CO₂.

third-party verified GHG emissions inventory for its operations in 2020, and by setting and disclosing its ambitious GHG reduction goals. GHG inventory data enables us to track the effectiveness of our climate initiatives and GHG reductions over time.

Notices of Violation (NOVs)

SMUD and its joint powers authority (JPA) contractor, EthosEnergy, strive to be good corporate citizens and responsible environmental stewards that comply with all local, state, and federal rules and regulations. In 2020, we received no NOVs or similar citations that include civil and/or criminal penalties.

California Mobility Center (CMC)

SMUD continued its leadership and support of the CMC by leveraging relationships with our Sustainable Communities partners who conducted outreach and job readiness training to prepare residents in underserved communities for stable, upwardly mobile careers. With SMUD's support, the CMC obtained grants worth over \$2M and is growing their workforce development efforts to reach even more community members, opening doors to emerging zero-carbon careers.

Sustainable Communities

To promote environmental equity as well as inclusive economic and community development, SMUD continues to focus community partnerships, programs, and neighborhood outreach activities in vulnerable and under-resourced communities through its Sustainable Communities program. SMUD has invested over \$5 million into this initiative, leveraging partnerships to increase positive impact in these areas of need. The goal is to ensure access to an inclusive clean energy future in the Sacramento Region regardless of zip code or socio-economic status by focusing on equitable access to mobility, a prosperous economy, a healthy environment, and social well-being as seen in Appendix D.

Environmental Justice and California Environmental Quality Act (CEQA) Process

SMUD now considers environmental justice (EJ) impacts as part of our CEQA review process. The EJ chapter identifies and addresses current environmental burdens and relevant socioeconomic characteristics using analysis from elsewhere in the CEQA document and from data sets within the [Sustainable Communities Resource Priorities Map](#) including [CalEnviroScreen](#). A project's potential to worsen existing adverse environmental and public health conditions is evaluated to determine if the project would negatively impact the local community. If so, community enhancements are proposed to lessen any negative impacts as part of our CEQA process.

Sacramento Tree Foundation (STF) Sacramento Shade Program

In 2020, the STF distributed 9,831 trees as part of its Sacramento Shade program serving 3,303 customers. A total of 829 of the trees were planted at public sites such as schools and parks, and 3,146 (32%) were planted in under-canopied communities to help resolve regional tree canopy inequity. The total carbon (stored in biomass and avoided) for these trees is estimated at 31,775.1 metric tons. To better understand issues related to tree planting and care, STF NeighborWoods organizers actively engage residents to help resolve tree planting impediments.

Wildfire Mitigation Plan (WMP)

SMUD's goal is to provide safe, reliable, environmentally sustainable, and economical electric service to its communities. SMUD constructs, maintains, and operates our electrical lines and equipment to minimize any risk of catastrophic wildfire. Our updated 2021 [WMP](#) describes the range of activities we are doing to mitigate the threat of power-line ignited wildfires, including various programs, policies and procedures. The WMP meets or exceeds the requirements of Public Utility Commission (PUC) section 8387 for publicly owned electric utilities and customers can find additional information at [Wildfire Safety](#).

Workflow Integration Program (WIP)

The WIP processed 261 planned overhead and underground electrical infrastructure projects in 2020. Avoidance and minimization measures (AMMs) were prescribed for 62 projects to reduce impacts on sensitive biological resources and the risk of NOV's. Field crews were given information on AMMs in their job packets, including descriptions of resources they could encounter, pre-construction survey requirements and the potential inclusion of biological and/or cultural monitors.

Environmental Leadership Recognition

Energy Strategy Research and Development project manager Joshua Rasin received a Technology Transfer Award from the Electric Power Research Institute (EPRI) for his work demonstrating the capacity and value of water heaters to support grid operation in low carbon future (2/20). The Energy StorageShare Program was recognized by Environment + Energy Leader, the California Municipal Utilities Association, and the Clean Energy States Alliance (2020). SMUD tied for first among national utilities for the JD Power Sustainability Index (7/20). Presented by Plug In America, SMUD received the 2020 Drive Electric Award as an outstanding utility for showing leadership and having significant impact on the adoption of electric vehicles (9/20).

Pollinator Support

SMUD is an active member of the Electric Power Research Institute's (EPRI) Power-in-Pollinators initiative which promotes and supports pollinator conservation among electric utilities. This partnership shares the latest scientific findings, case studies and tools to assist with the integration of pollinator-friendly practices into utility vegetation, facilities, and land management with the goal of restoring pollinator habitat and reversing species declines. We are partnering with the UC Davis Wild Energy Lab, EPRI and the Xerces Society to research pollinator-friendly native grasses and wildflowers, ecosystem health and soil carbon storage at Rancho Seco Solar II. We also plan to study the impacts of solar panel shading and soil moisture on milkweed establishment success as part of that larger research effort. We sent a letter to the U.S. Fish and Wildlife Service (USFWS) in support of the Candidate Conservation Agreement with Assurances (CCAA) program which encourages voluntary monarch butterfly habitat conservation. We are working with EPRI on a technical assessment of SMUD's landholdings for monarch butterfly habitat suitability and our website now includes [pollinator information](#). We regularly evaluate weed control alternatives in our Integrated Vegetation Management program and work to minimize the use of herbicides throughout our system. When feasible, we use goats and sheep to graze dry grass and brush in our

transmission corridors and other land holdings, reducing the need for herbicides and the risk of fires caused by mowing.

4. Challenges

The COVID-19 pandemic changed how we conduct business as our company and stakeholders pivoted to mostly remote workplaces. SMUD continues to experience challenges with federal, state, and local regulators as rules and regulations evolve, and some agencies are slow to issue permits due to a lack of resources. We expect delays to continue as many long-term agency employees retire and less experienced staff are left to manage changing policies. Additionally, we are actively supporting electric vehicle (EV) integration in our fleet (11.8% electric) as well as our region, which is challenging as technology changes quickly and we want to ensure EV adoption in all of the communities we serve.

We continue to expend considerable resources on numerous, complicated environmental remediation projects (e.g., Station E, the Former Community Linen site, 59th Street Reuse, Thornton Substation, and the North City Landfill Cap Design and Construction). Some of these efforts were additionally challenging due to regulatory changes made at the national level that do not consider California-specific factors.

We conduct monthly eagle injury and mortality monitoring at the Solano Wind Project in compliance with our 2019 Incidental Eagle Take Permit. With seven golden eagle fatalities, we are approaching the 12 eagle incidents authorized under the permit. We are coordinating with the U.S. Fish and Wildlife Service to develop and implement mitigation measures including operational changes to reduce the number of fatalities. We are also proposing to apply for a permit extension two years earlier than anticipated in order to avoid exceeding the number of authorized take.

5. Recommendation

It is recommended that the Board accept the Monitoring Report for SD-7, Environmental Leadership.

6. Appendices

- A. Examples of SMUD Efforts Supporting SD-7
- B. 2020 SD-7 Pamphlet
- C. 2015-2020 SMUD Greenhouse Gas Emissions Trends
- D. Sustainable Communities
- E. Glossary of Acronyms

Appendix A

Examples of SMUD Efforts Supporting Strategic Direction 7 (SD-7)

SD-7 Requirement	Supporting Effort
A) SMUD will conduct its business affairs and operations in a sustainable manner by continuously improving pollution prevention, minimizing environmental impacts, conserving resources, and promoting equity within SMUD's diverse communities.	SMUD exceeds state and federal requirements for public outreach for both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA); Station E; 59 th Street; Former Community Linen; North City landfill closure; Workflow Integration; Wildfire Mitigation Plan; Partnership with Sacramento Tree Foundation (9831 trees distributed to customers in 2020 with 32% in disadvantaged communities); SMUD Green Team; Rancho Seco Solar II; Climate Resiliency planning; Environmentally Sustainable Purchasing Program (ESPP); Sustainable Communities; Pollinator Support; SD-5 (Customer Relations); SD-13 (Economic Development); SD-15 (Outreach and Communication); CA Clean Air Day.
B) SMUD will provide leadership and innovation to improve air quality and reduce greenhouse gas emissions.	2030 Clean Energy Vision and Zero Carbon Plan; Third-party verified annual GHG reporting to the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), The Climate Registry (TCR) and CDP; GHG reduction efforts; Hydrogenation-Derived Renewable Diesel (HDRD); SF ₆ database pilot; SD-9 (Resource Planning); Integrated Resource Plan (IRP); SD-10 (Research and Development); Rancho Seco Solar II; ESPP; CA Clean Air Day.
C) SMUD will promote the efficient use of energy by our customers.	Greenenergy [®] ; SolarShares [®] ; Energy Assistance Program Rate (EAPR); home electricity reports; SMUD app; Incentives, rebates, and loans; web tools; educational opportunities for customers; BERCC Sustainability Series; SD-5 (Customer Relations); SD-13 (Economic Development); SD-15 (Outreach and Communication); Sustainable Communities program; Powerhouse Science Center.
D) SMUD will advance the electrification of vehicles, buildings, and equipment	California Mobility Center; Fleet Electrification; Building Electrification; Sustainable Communities program; Incentives, rebates, and loans.
E) SMUD will attract and build partnerships with customers, communities, policy makers, the private sector, and other stakeholders.	111 Sustainable Communities partnerships; Electric Power Research Institute (EPRI); Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA); Partnership with Sacramento Tree Foundation (9831 trees distributed to customers in 2020 with 32% in disadvantaged communities).

Appendix B SD-7 Summary Pamphlet

Greenhouse Gas (GHG) Emissions

SMUD is a leader in addressing global climate change and is an active member of The Climate Registry (TCR). SMUD reports its third-party verified GHG emissions to the California Air Resources Board (CARB), TCR and CDP (formerly the Carbon Disclosure Project). SMUD also reports GHG emissions and sets with reporting GHG emissions from the Joint Power Authority (JPA) to the US Environmental Protection Agency (EPA).

For 2020, GHG emissions were approximately 1,925 million metric tons carbon dioxide equivalent (MTCO₂e). This is an increase of about 229 thousand metric tons from 2019 emissions yet reflects an overall downward trend over the past six years (Appendix C). Fluctuations in total emissions year to year are primarily attributed to hydroelectricity production and natural gas contract rates. Lower hydroelectricity generation leads to higher utilization of SMUD's thermal power plants and increased purchased power leading to higher emissions. Over the past several years, SMUD's efforts to procure power from zero and low-emission sources (e.g., hydropower, wind and solar) have resulted in a lower carbon footprint.

SMUD burns biofuels at its thermal power plants to reduce our carbon compliance obligation and we generated approximately 180 gigawatt-hours (GWh) of power from biofuels in 2020. Emissions from biofuels are typically considered "carbon-neutral" under several GHG reporting protocols including California's Cap and Trade Program.



9,831
acres of forestland preserved



384
tons
recycled transformer steel



96,005
gallons
recycled transformer oil



8,789
tons
recycled transformer materials

For questions concerning SMUD's environmental services programs, please contact Patrick Durham, Director of Environmental, Safety and Real Estate Services, at 916-732-6327.

smud.org



Environmental Leadership

SMUD's focus on environmental leadership is clearly evident in our 2030 Clean Energy Vision and Zero Carbon Plan, but it also includes transparent reporting of GHG emissions, natural resource stewardship and our concerted efforts to make all of our communities more sustainable. This report highlights some of the accomplishments SMUD achieved in 2020 to showcase our commitment to environmental leadership.

We are compliant with the five tenets of SD-7 and our successes include making CDP's formerly known as the Carbon Disclosure Project "A List" for tackling climate change, and incorporating environmental justice (EJ) into our California Environmental Quality Act (CEQA) process. A number of our staff and programs received distinguished recognition too.

CDP "A List"

SMUD was recognized for our leadership in corporate sustainability by global environmental non-profit CDP, securing a place on its prestigious "A List" for the first time. SMUD was recognized for its actions to cut emissions, mitigate climate risks, and develop the low-carbon economy based on reported data. CDP's annual environmental disclosure and scoring process is widely recognized as the gold standard of corporate environmental transparency. SMUD is one of a small number of high-performing companies out of over 1,800 that were scored in 2020. Through significant demonstrable action on climate, SMUD is leading on environmental ambition, action, and transparency worldwide.



Powering forward. Together.

SMUD

2030 Clean Energy Vision and Zero Carbon Plan

For decades, SMUD has been a leader in clean energy and carbon reduction. Our 2030 Clean Energy Vision continues the commitment with our goal to reach zero carbon emissions in our power supply by 2030. This goal puts the Sacramento Region on the map as an example to follow and a region where innovative, climate-friendly businesses want to be. Going zero carbon brings benefits not only globally, but also locally with job creation opportunities, and since reduced emissions improve local air quality and overall health. SMUD's goal to eliminate carbon emissions from our power supply is more ambitious than the already aggressive state mandates and is ahead of virtually all other utilities in the United States. Our 2030 Zero Carbon Plan is a flexible road map to achieve our zero carbon goal while ensuring all customers and communities see some step the benefits of decarbonization.



Sustainable Communities

To promote environmental equity as well as inclusive economic and community development, SMUD continues to focus community partnerships, programs, and neighborhood outreach activities in vulnerable and underserved communities through its Sustainable Communities program. SMUD has invested over \$5 million into this initiative, leveraging partnerships to increase positive impact in these areas of need. The goal is to ensure access to an inclusive clean energy future in the Sacramento Region regardless of zip code or socioeconomic status by focusing on equitable access to mobility, a prosperous economy, a healthy environment, and social well-being.

Environmental Justice and California Environmental Quality Act (CEQA) Process

SMUD now considers environmental justice (EJ) impacts as part of our CEQA review process. The EJ chapter identifies and addresses current environmental burdens and relevant socioeconomic characteristics using analysis from elsewhere in the CEQA document and from data sets within the Sustainable Communities Resource Priorities Map including Call-to-Action. A project's potential to worsen existing adverse environmental and public health conditions is evaluated to determine if the project would negatively impact the local community. If so, community enhancements are proposed to lessen any negative impacts as part of our CEQA process.

Pollinator Support

SMUD is an active member of the Electric Power Research Institute's (EPRI) Power-to-Pollinator initiative which promotes and supports pollinator conservation among electric utilities. This partnership shares the latest scientific findings, case studies and tools to assist with the integration of pollinator-friendly practices into utility vegetation, facilities, and land management with the goal of restoring pollinator habitat and reversing species declines. We are partnering with the UC Davis Wild (Energy Lab), EPRI and the Xerces Society to research pollinator-friendly native grasses and wildflowers, ecosystem health and soil carbon storage at Rancho Seco V. We also plan to study the impacts of solar panel shading and soil moisture on milkweed establishment success as part of that larger research effort. We sent a letter to the U.S. Fish and Wildlife Service in support of the Candidate Conservation Agreement with Assurances (CCA) program which encourages voluntary monarch butterfly habitat conservation. We are working with EPRI on a technical assessment of SMUD's landholdings for monarch butterfly habitat suitability and our website now includes pollinator information. We regularly evaluate weed control alternatives in our Integrated Vegetation Management program and work to minimize the use of herbicides throughout our system. When feasible, we use goats and sheep to graze dry grass and brush in our transmission corridors and other land holdings, reducing the need for herbicides and the risk of fires caused by mowing.

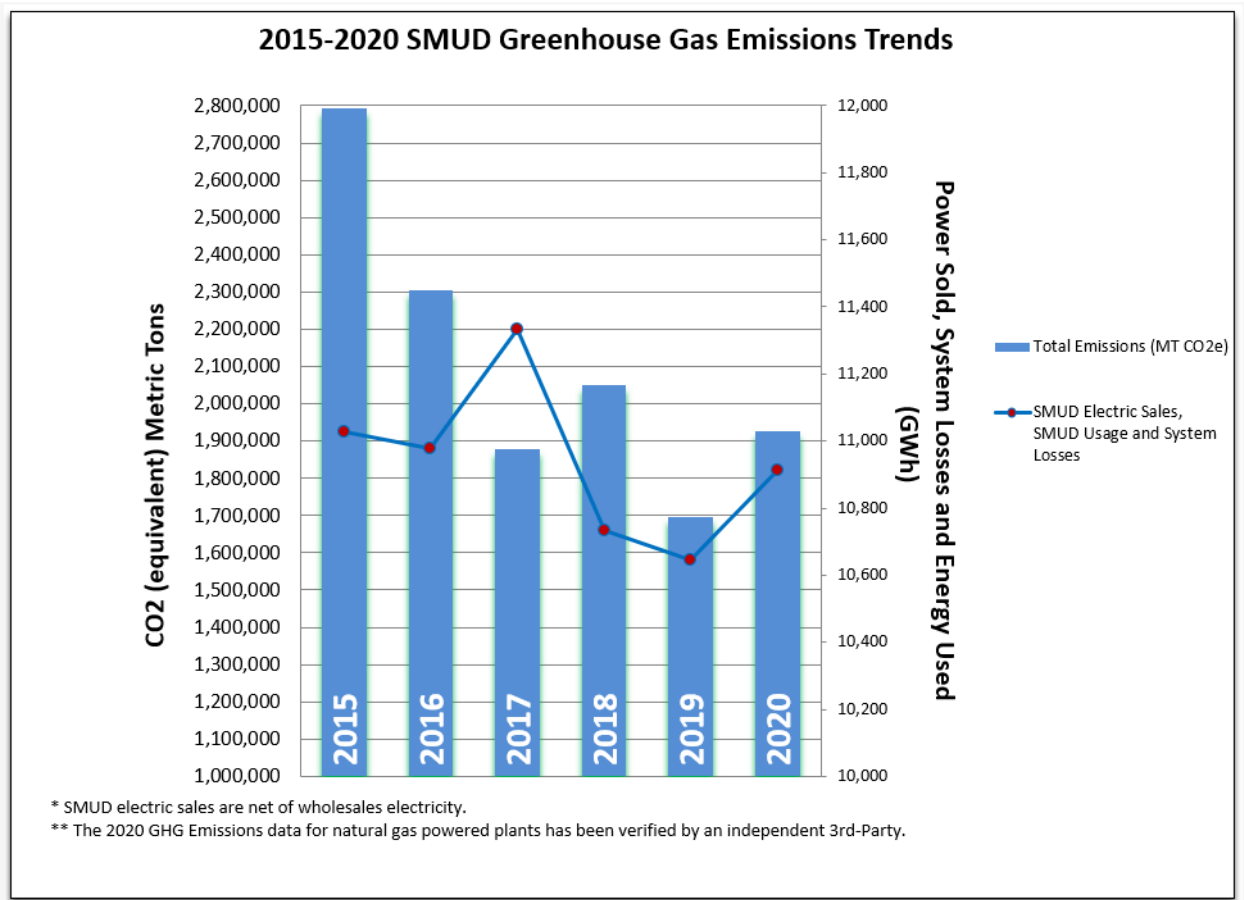
Sacramento Tree Foundation (STF) Sacramento Shade Program

In 2020, the STF distributed 9,831 trees as part of its Sacramento Shade program serving 3,303 customers. A total of 627 of the trees were planted at public sites such as schools and parks, and 3,146 (32%) were planted in underserved communities to help resolve regional tree canopy inequity. The total carbon stored in biomass and avoided for these trees is estimated at 31,775.1 metric tons. To better understand issues related to tree planting and care, STF Neighborhoods' organizers actively engage residents to help resolve tree planting impediments.

Notices of Violation (NOV)

SMUD and its joint powers authority (JPA) contractor, EbascoEnergy, strive to be good corporate citizens and responsible environmental stewards that comply with all local, state, and federal rules and regulations. In 2020, we received no NOV or similar citations that include civil and/or criminal penalties.

Appendix C²



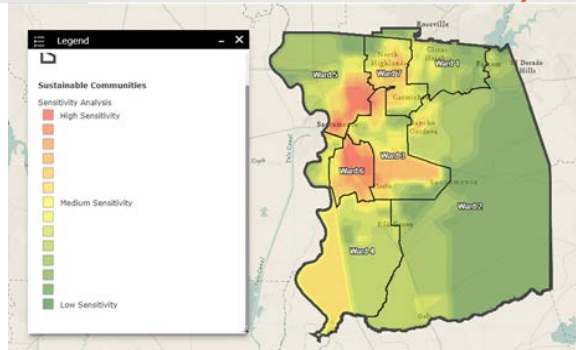
² Unlike SD-9, the emissions data in SD-7 is not normalized.

Appendix D

Sustainable Communities Deliverables and Accomplishments To-Date



SMUD's Sustainable Communities Priority Map



To deploy comprehensive resources for our communities most in need, we must align our region's investments toward the goal of creating and supporting healthy, vibrant, and economically sustainable neighborhoods. Our Sustainable Communities Resource Priorities Map is a result of SMUD's data-driven approach to geographically identify areas of inequity within the Sacramento region that highlight where future resources may be optimally utilized. This interactive map helps analyze current data to identify under-resourced and distressed areas in our region, driven by lack of community development, income, housing, employment opportunities, transportation, medical treatment, environmental sustainability mitigation, nutrition, education, and clean environment.

<https://sdgs.un.org/goals>

United Nations Environmental Justice Principles

- Prioritize human health and quality of life
- Do no further harm
- Prioritize Environmental Justice Communities
- Meaningful Community Engagement
- Be Responsive
- Be Accountable
- Be Transparent
- Engage in Proactive Partnerships

Sustainable Communities Mapping and Metrics

Ensuring Equitable Outcomes

April 14, 2021
9
Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting

<https://www.cdc.gov/climateandhealth/effects/default.htm>

Impact of Climate Change on Human Health

“Climate change challenges our commitment to achieve equity in health and wellbeing in California, as it deepens the need to take actions that reduce vulnerabilities and increase resilience to climate change in our communities.”

April 14, 2021
4
Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting

Sacramento Region Inclusive Economic Conditions- 2018-2020 Sustainable Communities Outcomes

Racial Inclusion- 31 (Improved 15 spots)

- Change in Employment gap46
- Change in median earnings gap25
- Change in relative poverty gap21

Geographic Inclusion- 30 (Decreased 7 spots)

- Change in neighborhood employment gap8
- Change in median household gap8
- Change in neighborhood poverty gap21

Growth - 34 (even)

- Change in Jobs 27
- Change in Gross Metropolitan Product80
- Change in jobs at young firms45

Prosperity- 33 (Improved 1 spot)

- Change in Productivity 34
- Change in average annual wage30
- Change in standard of living37

Inclusion-15 (Improved 5 spots)

- Change in employment rates11
- Change in median earnings27
- Change in relative poverty rate 9

2020 Sacramento Region Economic Outcomes Post COVID19 (Brookings Institute March 2021)	
COVID-19 cases	N/A
Jobs	-7.3%
Unemp. rate	+4.6%
Job postings	+9.7%
Air passengers	-61.2%
Work trips	-36.5%
Small biz hours	-34.3%
Small biz open	-27.7%
Active listings	-52.0%
Listing price	+19.8%
Commercial vacancies	+0.4%
Multifamily rent	+7.5%

April 14, 2021

3

Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting



Appendix E

List of Acronyms

AMM	Avoidance and Minimization Measure
BERC	Business Environmental Resource Center
CARB	California Air Resources Board
CCAA	Candidate Conservation Agreement with Assurances
CDP	Carbon Disclosure Project (formerly)
CEQA	California Environmental Quality Act
CMC	California Mobility Center
CO₂	Carbon Dioxide
CO₂e	Carbon Dioxide Equivalent
EAPR	Energy Assistance Program Rate
EJ	Environmental Justice
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESPP	Environmentally Sustainable Purchasing Program
EUISSCA	Electric Utility Industry Sustainable Supply Chain Alliance
EVs	Electric Vehicles
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HDRD	Hydrogenation Derived Renewable Diesel
IRP	Integrated Resource Plan
JPA	Joint Power Authority
MT	Metric Tons
NEPA	National Environmental Policy Act
NOV	Notice of Violation
PUC	Public Utility Commission
SD	Strategic Direction
SEPA	Smart Electric Power Alliance
SF₆	Sulfur Hexafluoride
SMUD	Sacramento Municipal Utility District
STF	Sacramento Tree Foundation
TCR	The Climate Registry
WIP	Workflow Integration Program
WMP	Wildfire Mitigation Plan

RESOLUTION NO. _____

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

This Board accepts the monitoring report for **Strategic Direction SD-7, Environmental Leadership**, substantially in the form set forth in **Attachment ____** hereto and made a part hereof.

SSS No.

RS 21-005

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date

Policy Committee; 09/08/2021

Board Meeting Date

09/16/2021

TO					TO				
1.	Bryan Swann				6.				
2.	Scott Martin				7.				
3.	Jennifer Davidson				8.				
4.	Stephen Clemons				9.	Legal			
5.					10.	CEO & General Manager			

Consent Calendar		Yes	No If no, schedule a dry run presentation.	Budgeted	Yes	No (If no, explain in Cost/Budgeted section.)		
FROM (IPR)		DEPARTMENT		MAIL STOP		EXT.	DATE SENT	
Sara Elsevier		Resource Strategy		B205		5056	08/19/2021	

NARRATIVE:

Requested Action: Accept the monitoring report for Strategic Direction SD-9, Resource Planning.

Summary: Annual SD-9 Resource Planning Monitoring Report

Board Policy: Meets annual monitoring requirement for SD-9 (Resource Planning) and addresses SMUD's progress toward achieving 2030 Zero Carbon Plan, renewable portfolio standard (RPS), energy efficiency (EE), building electrification (EB), transportation electrification (TE), equity and sustainable communities, as well as carbon reduction goals.
(Number & Title)

Benefits: Provide a status report to the Board members on meeting 2030 Zero Carbon Plan, RPS, EE, EB, TE, equity and sustainable communities, and carbon reduction goals.

Cost/Budgeted: NA

Alternatives: NA

Affected Parties: Customer Service, Legislative and Regulatory Affairs Customer Strategy, Risk Management, Resource & New Business Strategy, Communication, Marketing and Community Relations, Treasury, Legal, Energy Supply, Sustainable Communities, Customer Experience Delivery

Coordination: Resource Strategy

Presenter: Bryan Swann

Additional Links:

SUBJECT

Annual SD-9, Resource Planning Monitoring Report

ITEM NO. (FOR LEGAL USE ONLY)

7

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: August 31, 2021

FROM: Claire Rogers *CR 8/31/21*

**SUBJECT: Audit Report No. 28007343
Board Monitoring Report; SD-09: Resource Planning**

Audit and Quality Services (AQS) received the SD-09 *Resource Planning* 2021 Annual Board Monitoring Report and performed the following:

- A review of the information presented in the report to determine the possible existence of material misstatements;
- Interviews with report contributors and verification of the methodology used to prepare the monitoring report; and
- Validation of the reasonableness of a selection of the report's statements and assertions.

During the review, nothing came to AQS' attention that would suggest the SD Board Monitoring report did not fairly represent the source data available at the time of the review.

CC:

Paul Lau

Board Monitoring Report 2021

SD-9, Resource Planning



1. Background

It is a core value of SMUD to provide its customers and community with a sustainable power supply using an integrated resource planning process.

A sustainable power supply is one that reduces SMUD's greenhouse gas (GHG) emissions to serve retail customer load to Zero by 2030. Zero GHG emissions will be achieved through investments in energy efficiency, clean distributed energy resources, renewables portfolio standard (RPS) eligible renewables, energy storage, large hydroelectric generation, clean and emissions free fuels, and new technologies and business models. Additionally, SMUD will continue pursuing GHG savings through vehicle, building and equipment electrification. SMUD shall assure reliability of the system, minimize environmental impacts on land, habitat, water and air quality, and maintain competitive rates relative to other California electricity providers.

To guide SMUD in its resource evaluation and investment, the Board sets the following energy supply goal:

Year	Greenhouse Gas Emissions (metric tons)
2020	2,318,000
2030 - beyond	0

In keeping with this policy, SMUD shall also achieve the following:

- a) Pursue energy efficiency and electrification to reduce carbon emissions by 365,000 metric tons from buildings and 1,000,000 metric tons from transportation in 2030 (the equivalent of 112,000 single family homes and 288,000 passenger vehicles electrified).
- b) Procure renewable resources to meet or exceed the state's mandate of 33% of SMUD's retail sales by 2020, 44% by 2024, 52% by 2027, and 60% of its retail sales by 2030 and thereafter, excluding additional renewable energy acquired for certain customer programs.
- c) In meeting GHG reduction goals, SMUD shall:
 1. Emphasize local and regional benefits.
 2. Improve equity for under-served communities.
- d) Explore, develop, and demonstrate emerging GHG-free technologies and business models.
- e) Promote cost effective, clean distributed generation through SMUD programs.

2. Executive Summary

SMUD's integrated resource planning process informs long-term strategic development by the various business units within SMUD, and efforts are made to balance reliability, sustainability, environmental, financial, and customer objectives while achieving SD-9 goals.

In 2020, SMUD's Board took two actions related to our SD-9 Goals. SMUD's Board (1) updated the SD-9 energy efficiency goal to a carbon-based metric and established building-electrification goals and (2) adopted a Climate Emergency Resolution that calls on the Board to work towards carbon neutrality by 2030. In 2021, the Board further revised our SD-9 targets and put us on a path to eliminate GHGs from our power supply by 2030.

In April 2021, SMUD's Board adopted our 2030 Zero Carbon Plan, our road map to eliminating carbon emissions from our electricity production by 2030. Under this plan, we're working to eliminate GHG

emissions from our power plants, develop new distributed energy resource business models, research emerging grid-scale carbon free technologies, and expand our investments in proven clean technologies. We have made progress implementing this plan including undertaking new studies, studying new zero carbon resources, and piloting new programs.

In 2020, our normalized GHG emissions were 1.624 million metric tons (MMt), which continues to be below our 2020 goal. We also met our 2020 RPS target of 33% renewables by 2020. As this report demonstrates, **in 2020, SMUD was in compliance with each of the goals for the year established in SD-9.**

3. Additional Supporting Information

A. Implementation of our 2030 Zero Carbon Plan

Our 2030 Zero Carbon Plan is our road map to eliminating carbon emissions from our electricity supply by 2030 while maintaining reliable and affordable service and partnering with our customers, communities, and a wide range of stakeholders on this journey. This plan calls for eliminating GHGs from our power plants and expanding our investments in proven clean technologies. Below, is a discussion of our current carbon footprint as well as an update on the near-term actions we're taking to implement our 2030 Zero Carbon Plan; for more detailed project information, see Appendix C.

As shown in Table 1, SMUD's adjusted GHG footprint in 2020 was 1.624 MMt, lower than our 2020 target of 2.318 MMt. SMUD's main sources of GHG emissions were from SMUD's thermal power plants and market purchases.

Table 1: 2020 SD-9 Carbon Footprint & Near-term Targets

Source	Net Power (GWh)	CO2e Emissions (1000 t) ¹
Net Generation and Power Purchases	12,331	2,252
Wholesale	(1,417)	(327)
SMUD Electric Sales, SMUD Usage and System Losses	10,914	1,925
Adjustment for Normal Load		(34)
Adjustment for Normal Wind and Hydro		(260)
REC Banking Adjustment		(7)
SMUD Normalized Total (estimate)		1,624
2020 Target		2,318

Expanding our Sustainable Power Supply; Local and Regional Benefits

We're focused on reimagining our generation portfolio through retirement or retooling of our natural gas assets, expanding our local investments in proven clean technologies and launching pilot projects and programs for new and emerging technologies all while continuing our work to improve equity for our under-resourced communities.

Natural Gas Generation

Currently, our natural gas-fired thermal power plants are economic and reliable sources of both energy and non-energy services to the system, but are our largest source of GHGs. Moving forward,

¹ Based on SMUD's internal accounting and represent best estimates available. The thermal power plant emissions, SMUD's largest source of emissions, have been independently verified. Biogenic emissions are excluded as they are part of the natural carbon cycle.

we're considering what role these units could play in our zero carbon future and we are on track with our year one implementation priorities.

- We are performing detailed studies of reliability and the impacts of retiring McClellan and Campbell; infrastructure planning and reliability studies are also underway. These studies are on schedule.
- We are conducting industry outreach, have begun preliminary research on the Allam-Fetvedt Cycle² and are expanding our understanding of clean fuels that could be viable alternatives as we transition away from natural gas. Additionally, we're probing long duration energy storage options and are further exploring hydrogen as part of the DOE's H2 Blend Collaborative Partnership Grant.

Proven Clean Technologies and Zero Emission Resource Development

Acquisition of additional proven clean technologies, such as renewables, batteries, and hydroelectric power will further help reduce and ultimately eliminate our GHG emissions. Staff continue to conduct procurement efforts, cultivate new resource development, and implement new ideas. In 2020, we added over 180 MW of renewables and have over 1,000 MW of new renewables and storage in the pipeline for development to serve our customers due online in the coming years.

Although our goals are more ambitious than already aggressive state mandates, we continue to implement a renewable energy strategy that fulfills state RPS requirements and gives our customers the choice to further reduce their emissions with renewable energy products. SMUD achieved our 2020 RPS target by providing 33% of retail sales with renewables and are on path to achieving the next RPS statutory requirement of 44% RPS in 2024.

We continue to be a leader in the nation by offering our customers renewable pricing choices. Last year SMUD delivered 1,271 GWhs, 12.5% of retail sales, to customers participating in Greenergy and SolarShares. Our Greenergy program served more than 74,000 residential and commercial participants with 950 GWh and our Large Commercial SolarShares program met program expectations, delivering 321 GWhs to customers. Our Neighborhood SolarShares project, approved by the CEC in early 2020, will be served entirely from solar resources within SMUD's service territory. The first of those resources, Wildflower (13 MW), came online in December 2020.

We are on track with our year one 2030 Zero Carbon Plan implementation priorities in this area.

- Locational analysis, system impact studies, and economic valuation work are ongoing
- The team is exploring and evaluating delivery options for out-of-area renewables.
- The process to develop and issue competitive solicitation for new proven clean technology projects is ongoing; we are assessing need for new resources in the 2024-2027 timeframe.

New Technology and Business Models

Using proven clean technology, we expect to be able to reduce our carbon emissions by 90% without compromising reliability or our low rates. To eliminate the last 10%, we'll need to explore, develop, and demonstrate new technologies. As part of our 2030 Zero Carbon Plan, we are on track with our year one implementation priorities in this area.

- Perform information technology system upgrades to enable DERs and VPPs – this work is ongoing, anticipated completion in early 2022.

² A process that involves burning fossil fuel with oxygen instead of air to generate electricity without emitting any carbon dioxide

- Work integrating DERs in operations, distribution and the grid planning process is ongoing and will evolve based on our experience with our new load flexibility pilots.
- To support our load flexibility efforts, we're preparing to launch a portfolio of pilots, including behavioral, multi-DER, and storage virtual power plant, and are working to expand our EV managed charging and vehicle-to-grid demonstrations. Our residential Multi-DER Virtual Power Plant, which will launch in 2021 and a residential NextGen 2-way A/C load control switch program, is expected to be launched within the next couple years.

We continue to fund research and development efforts and to look for grants for clean energy and GHG reduction projects. Finally, recognizing the importance of equity, we will continue to prioritize under-resourced communities to help reduce the energy bill burdens of our low-income customers while ensuring equity in our program offerings.

Improving Equity through Workforce Development in Under-Resourced Communities

SMUD's carbon reduction actions help reduce climate change, but our work is about more than that. We are staying true to our roots—as a community-owned organization, implementation of our 2030 Zero Carbon Plan will deliver wide-reaching benefits to our community, including expanded workforce development program offerings, while focusing on equity and strengthening our communities—one SMUD, one Sacramento.

- SMUD has partnered with the California Mobility Center (CMC) and community-based organizations (La Familia Counseling Center, Inc., Asian Resources, Inc., and Greater Sacramento Urban League) to provide job readiness and technical training to over 300 community participants to prepare them for careers in the clean mobility sector.
- Additionally, SMUD and its Promise Zone partners graduated 25 students from the inaugural "Energy Career Pathways" solar training class. SMUD and its partners continue to work with graduates on job placement, with a total of 12 placements to date. After a short hiatus due to COVID-19 restrictions, SMUD restarted an expanded program in 2021 with a new partner, Grid Alternatives, which expects to graduate 100 participants in the program.

B. Energy Efficiency and Electrification Goals

Energy Efficiency and Building and Vehicle Electrification

The Building Energy Efficiency portfolio includes offerings for residential retailer incentives, residential customer rebates, commercial builder incentives, and commercial customer rebates. The Building Electrification portfolio includes offerings for gas-to-electric conversions of water heating equipment, space heating equipment, and cooktops delivered through residential new construction, whole house retrofits, and prescriptive equipment rebates. In 2020, our energy efficiency and building electrification programs reduced emissions by 25,786 tCO₂ [Civic Carbon].³ By 2030, our goal is to have these programs reduce emissions by 365,000 MT in 2030, the equivalent of 112,000 single family homes. We are on track to meet this goal. We are on track to reduce carbon emissions by 365,000 metric tons from buildings in 2030.

³ The DER Cost Effectiveness Tool evaluates and accounts for DER program effectiveness on achieving our prior 2040 Net Zero goal. This estimate is the 2020 gross annual emissions impact. It is a measure of the carbon reduced from measures, programs, and the DER portfolio. It is reported in each year the "measure" is installed on the grid and within its useful life. The tool will be updated to reflect our current 2030 Zero Carbon Vision so the 2020 carbon emission impact from this report should be considered draft and will be revised for the next monitoring report.

SMUD's Transportation Electrification portfolio includes offerings in residential vehicle incentives, dealership incentives, residential outreach, commercial charger incentives, and commercial vehicle incentives. At the end of 2020, we had 17,977 EVs registered within SMUD's service territory, an increase of 4,821 registered vehicles and an estimated CO2 reduction of 22,300 metric tons. 16,179 are residentially registered EVs. We are on track to pursue transportation electrification to reduce carbon emissions by 1,000,000 metric tons from transportation in 2030.

C. Promote Cost Effective Clean Distributed Generation and Storage

SD-9 requires that SMUD develop programs to promote cost effective, clean distributed generation. The following describes progress in 2020 and alignment with our 2030 Zero Carbon Plan.

Flexible Demand

Our flexible demand programs seek to optimize operation of our customer-partner's equipment and distributed energy resources while balancing customer-partner and grid needs as well as compensating customers for the energy they supply into SMUD's grid for use by other customers. In past, DERs have mainly focused on rooftop solar and heating/cooling technologies, but now include EVs, water heaters, solar panels with smart inverters, batteries, and more.

With our PowerDirect program, commercial customers were notified six times to curtail load; average load reduction of 2.06 MW to 9.56 MW across the duration of the events. ⁴ Under our temperature dependent rates, two commercial customers were notified three times during the summer, 13.55 to 15.46 MW of load reduction. ⁵ Finally, Peak Corps provides about 59 MW of resource adequacy capacity and remains an operational resource to be used in case of an emergency. Our dispatchable programs provide an expected load shed range of 53.5 to 79.5 MW; our non-dispatchable programs provide between 0 and 15.5 MW of expected load shed.

As part of our load flexibility programs, we offer time-of-day rates, which give the majority of our customers more time on the lower priced non-summer seasonal rate. In 2020, the TOD rate program exceeded our expectations, providing vital reductions in our peak load, carbon emissions and commodity costs. For more details, please see Appendix C.

As part of our 2030 Zero Carbon Plan, pilot programs aimed at flexible energy use will allow customers to reduce their energy usage and bills at times when grid stress is the highest.

Clean Distributed Generation and Storage

In 2020, we had over 34,000 customer-sited PV installations in SMUD's service territory. 35 MW of customer sited solar PV was installed and 3.17 MW of customer-sited energy storage projects were installed or in progress, 2.96 MW in residential and 0.206 MW in commercial. In addition, we procured a 4.4 MW SMUD owned utility-scale battery.

4. Challenges

There were no notable challenges to meeting the goals in SD-9.

5. Recommendation

It is recommended that the Board accept the Monitoring Report for SD-9.

⁴ NERC WebDADs report

⁵ NERC WebDADs report

Appendix A – SD-9 History

SD-9 was established by SMUD's Board in 2004 and provides direction for SMUD's ongoing environmental leadership and the use of an IRP process to achieve these directives while balancing environmental goals with financial and customer rate impacts and reliability requirements. SMUD's strategic directions have evolved as markets, policies and laws have changed.

In December 2008, the Board added sustainable power supply as the overall objective of the integrated resource planning process and set a GHG emissions target. In 2018 the Board updated our greenhouse gas reduction goals to include a 2040 Net Zero GHG goal. In 2020, the Board amended SD-9 to adopt carbon-based targets for energy efficiency and building electrification. This change represents the first time a major utility has used carbon as its efficiency tracking metric, and was done to better align our energy efficiency and electrification programs as well as to align both of those programs with our evolving energy supply picture.

In April 2021, the Board adopted Resolution No. 21-04-04 which updated the SD-9 direction to align with our 2030 goal of 0 MT GHG emissions in our energy supply by 2030, as put forth in our *2030 Zero Carbon Plan*. SMUD has embarked on a path to zero carbon by 2030, focusing on zero carbon resource acquisition and new renewable energy contracts, expanding on customer programs for energy efficiency and building and transportation electrification, developing new voluntary customer programs, and researching emerging clean energy technology. Under SD-9, SMUD's goal is the reduction of long-term GHG emissions for serving retail load from its current state to zero carbon by 2030, more aggressive than California's goal of 20% of 1990 emissions by 2050.

Appendix B – Methodology Discussion

Normalization Adjustments

Emissions adjustments to the actual footprint include a *decrease* to account for higher than expected energy usage by SMUD customers, a *decrease* to account for lower than expected hydro production, an *decrease* to account for lower than expected wind production and a *decrease* for using banked renewable energy credits (RECs). In 2020, SMUD strategically utilized banked RECs to achieve RPS mandates as additional large renewable projects are developed. In previous years, SMUD procured more renewable energy than required and received credits for future use. These credits were saved or banked in accordance with RPS rules. Using these banked RECs lowers SMUD's normalized emissions because any emissions impacts were realized at an earlier date.

Renewable Portfolio Standard (RPS)

State law requires SMUD procure renewable generation of at least 33% of retail sales by December 31, 2020 and 60% by 2030 as well as interim targets be achieved over compliance periods⁶. In 2020, we achieved our and the State's RPS target with 3,200 GWh of eligible RECs.

Appendix C – Detailed Project Descriptions

Sustainable Communities

Implementation of our 2030 Zero Carbon Plan will deliver wide-reaching benefits to our community while focusing on equity and strengthening our communities.

⁶ Senate Bill 100 (De León, Chapter 312, Statutes of 2018) increased RPS targets to 44% by the end of 2024, 52% by the end of 2027, 60% by the end of 2030 and sets a statewide retail sales goal of 100% RPS eligible and zero-carbon resources by 2045.

- Transportation Electrification. SMUD is dedicated to partnering with the community to expand eMobility Hubs throughout our region, which will be strategically located at sites in under-resourced communities. These Hubs will include various modes of transportation such as public transit, micro mobility, shared mobility, ride hail, taxi services, community electric vehicles, public EV charging stations, etc. Additionally, EV programs will be expanded to assist customers that own or lease an electric vehicle to charge at home by providing low cost or free EV charging infrastructure for income eligible customers and expertise on home charging solutions. We also have incentive funds available to expand EV charging infrastructure at public locations, multifamily properties and affordable housing sites.
- Load Flexibility. SMUD will work to ensure that all customers can participate in the portfolio of load flexibility pilots launching in 2021 and 2022. These pilots are necessary to meet our 2030 zero carbon goal, yet they can sometimes require costly technology like a smart thermostat, electric vehicle, or battery storage system to participate. SMUD will continue to explore ways in which our load flexibility pilots can be more inclusive despite this barrier. Examples surfaced to date include integrating load flexibility program enrollment into our existing low-income weatherization program, which already provides a no-cost smart thermostat in most cases. Another example would be creating a no-cost technology installation pathway for low-income homeowners or renters to participate in our virtual power plant with their heating/cooling system.
- Building Electrification and Energy Efficiency. To support SMUD's equity efforts as part of the 2030 Zero Carbon Plan, SMUD will continue expansion of its existing efforts to provide no-cost energy retrofit installations to income eligible residential customers for both gas-to-electric conversions and electric-to-electric upgrades. Available project measures include electric heat pump water heaters, electric heat pump HVAC units, seal and insulate projects, and panel upgrades. In addition, SMUD will continue to provide a low-income incentive premium for projects within SMUD's Multifamily retrofit program that meet affordable housing criteria

Our Sustainable Communities Workforce Development efforts partner with organizations to reach into our community to understand the challenges that residents face in pursuing good-paying careers.

- SMUD and its Promise Zone partners graduated 25 students from the inaugural "Energy Career Pathways" solar training class. The class recruited participants from underserved communities and helped them access high-paying solar jobs by demonstrating proficiency in the areas of energy industry knowledge, solar installation and the social, teamwork, and safety skills needed to be successful in the workforce. Despite the challenges presented by the onset of the COVID-19 pandemic, several students were hired-on by solar companies immediately upon graduating. SMUD and its partners continue to work with graduates on job placement, with a total of 12 placements to date. As part of the program, trainees installed two solar trees each at The Greater Sacramento Urban League and the Simmons Community Center. The installation of these solar trees not only serves to beautify our community and help to promote renewable energy, but they also provide class participants with hands-on experience building solar structures. After a short hiatus due to COVID-19 restrictions, SMUD restarted an expanded program in 2021 with a new partner, Grid Alternatives, which expects to graduate 100 participants in the program.
- SMUD is partnering with the California Mobility Center and community-based organizations (La Familia Counseling Center, Inc., Asian Resources, Inc., and Greater Sacramento Urban League) to provide job readiness and technical training to over 300 community participants to prepare them for careers in the clean mobility sector. The CMC provides an atmosphere where clean mobility start-ups can grow and drive new business opportunities and this partnership will ensure that these new business opportunities will have an already trained, local workforce to draw upon. The infrastructure that is used to design and manufacture clean mobility vehicles will also be used to train priority populations.

Additionally, to deploy comprehensive resources for our communities most in need, we must align our region's investments toward the goal of creating and supporting healthy, vibrant, and economically sustainable neighborhoods. We have several data collection and visualization initiatives aimed at matching areas of inequity within the Sacramento region with future investment; we're working to address potential inequities in the way we do business.

- Our Sustainable Communities Resource Priorities Map is a result of SMUD's data-driven approach to geographically identify areas of inequity within the Sacramento region that highlight where future resources may be optimally utilized. This interactive map helps analyze current data to identify under-resourced and distressed areas in our region, driven by lack of community development, income, housing, employment opportunities, transportation, medical treatment, environmental sustainability mitigation, nutrition, education and clean environment. Recently, we used this map to analyze thermal power plants in high/moderately high sensitivity areas that should be targeted for emissions reductions.
- Also, part of our data-driven approach to equity, our internal Sustainable Communities Dashboard tracks funding and links partners and projects across six key focus areas – Institutional Support and Outreach, Education, Health Equity, Environmental Leadership, Economic Development, and Transportation and Access. These metrics coupled with expanded access to equitable workforce pipeline and business creation, will serve to validate investments across focus areas.
- SMUD will establish a structure for institutionalizing and operationalizing DEI strategies by creating an equity index to provide evaluation of new & existing SMUD programs & incentives.

Proven Clean Technology Projects

Table C-1 details new proven clean technology procurement activities.

Table C-1: New Procurement and Project Development Status

Project Name	Type	MW	Status	Projected Online Date
Sacramento Valley Energy Center	PV	250	Planning	2024
	Battery	100		
King's Country	PV	50	Planning	2024
Sacramento Solar	PV	340+	Planning	2024
	Battery	170+		
Solano 4	Wind	91	Pre-Construction	2024
Hedge Battery	Battery	4MW/ 8MWh	Under Construction	2021
NTUA Drew Solar	PV	100	Under Construction	2022
South Fork Powerhouse	Small Hydro	3	Online	2020
Wildflower	PV	13	Online	2020
Chili Bar	Small Hydro	7	Online	2021
Rancho Seco 2	PV	160	Online	2021
Total		1,000+		

Additionally, in the near-term, we are exploring options to procure or develop new zero emission resources, including local solar and storage, to help achieve our 2030 Zero Carbon Vision.

Energy Efficiency Programs

In 2020, SMUD's residential new construction program completed 230 newly built all-electric homes, and installed 928 gas-to-electric heat pump water heaters in existing homes, 1,265 gas-to-electric heat pump HVAC systems in existing homes, and 78 gas-to-electric induction cooktops in existing homes.

Below is a summary of some of our 2020 energy efficiency and building electrification accomplishments including our energy efficiency improvement and building electrification initiatives for our income eligible customers.

Table C-2: 2020 Energy Efficiency and Building Electrification Accomplishments

Measures & Projects	Results
Commercial Projects Completed Complete Energy Solutions	47
Commercial Projects Through Express Energy Solutions	3,681
Custom Commercial Projects Completed	41
New Efficient Commercial Buildings Constructed	25
Multifamily Apartments Retrofitted (Electric To Electric)	622
Multifamily Apartments Retrofitted (Gas To Electric)	45
Efficient Induction Cooktops (Electric To Electric)	86
Efficient Induction Cooktops (Gas To Electric)	78
Energy Star Products Purchased through RPP Retailers	23,059
Advanced Power Strips Installed	4,320
Old Refrigerators Recycled	9,949
Pool Pumps Purchased	879
Residential Heat Pump Water Heaters Installed (Electric To Electric)	77
Residential Heat Pump Water Heaters Installed (Gas To Electric)	928
Residential HVAC Installations (Electric To Electric)	2,540
Residential HVAC Installations (Gas To Electric)	1,265
Residential Seal and Insulate Installations	346
All Electric New Homes Constructed	230
Income Eligible Energy Efficiency Bundles and Electrification	Results
Solar + Weatherization	743
Energy Saver Deep Home Retrofits	743
Energy Saver House Bundles	421
Energy Saver Apartment Bundles	1,194
Virtual Energy Education	1,014
Weatherization	808
Energy Saver bundle for Mobile Homes	277
Heat Pump Space Heating (Gas to Electric)	226
Heat Pump Water Heaters (Gas to Electric)	97
Induction Stoves (Gas to Electric)	23

Vehicle Electrification

In 2020, the California Mobility Center (CMC) prepared to move from its pre-launch phase to commercial operations, which began March 2021. This transition helped us achieve a major milestone towards our transportation electrification objectives, 288,000 passenger vehicles electrified by 2030, and defined Sacramento as a hub for innovation. In 2020, SMUD continued its leadership and support of the CMC, leveraging relationships with our Sustainable Communities partners who conduct outreach and job readiness training to prepare residents in underserved communities for jobs in stable, upwardly mobile careers. With SMUD's support, the CMC obtained grants worth over \$2M and is expanding their workforce development efforts to reach even more community members, opening doors to emerging zero carbon careers.

SMUD team members also collaborate broadly through the Sacramento PEV Collaborative, which includes the County of Sacramento, the City of Sacramento, Sacramento Metropolitan Air Quality Management District (SMAQMD), Sacramento Area Council of Governments (SACOG), State of California agencies, UC Davis Institute of Transportation Studies, Electrify America, Sac EV and many others.

In 2020, SMUD's Drive Electric program continued to promote adoption of plug-in electric vehicles (PEV) through a special EV rate offering, our "Charge Free for 2 years" rebate, and participation in educational events, educational offerings through our website <http://www.SMUD.org/DriveElectric> and in collaboration with local auto dealers and Sac EV. In 2020, SMUD's Charge Free for Two Years EV incentive ended in Q4 and was replaced by the statewide California Clean Fuel Reward program. In 2020, SMUD approved 1,846 EV incentives for the purchase or lease of a new EV.

Due to COVID restrictions, in lieu of in-person events, staff produced a virtual ride & drive video to expand capabilities and reach. The video, designed for customers, is "experiential" and to the extent possible educates viewers on many "EV lifestyle" elements.

Other 2020 activities included:

- Transitioned to live online dealer EV sales training webinars in response to COVID and implemented on-demand online training as an additional resource to enhance dealer certification as PlugStar certified dealers. Twenty-two dealers are participating in the program.
- Implemented an "EV Concierge" service for SMUD customers through Plug in America's Electric Vehicle Support Program offering live one-on-one support answering questions on all things EV.
- Implemented our first EV auto dealership competition to encourage and incentivize EV sales and reward dealerships and their staff for increased EV promotion.
- Developed and launched the Clean Cars for All program in conjunction with SMAQMD. This program provides up to \$9,500 toward a new or used PEV for income-qualified residents living in areas impacted by higher levels of pollution (disadvantaged communities).
- Facilitated the second *Charge Up Change!* EV video competition in which middle school students produce a video on why "EVs are cool" and compete for monetary awards and other recognition.
- SMUD partnered with the California Energy Commission and the Center for Sustainable Energy to launch the California Electric Vehicle Infrastructure Project (CALeVIP) in Sacramento County to promote the installation of public level II and DC fast charging stations. The partnership was the first of its kind in the state, and is being used as a model for projects in other areas of California. In 2020, SMUD staff hosted a contractor training to 70 attendees to provide overview of the State CALeVIP and Commercial EV programs.

Additionally, SMUD conducted and supported research to increase EV adoption:

- Awarded \$85,000 incentive to a Shell gas station for the installation of a 50kW DC Fast Charger (DCFC) located in a high traffic area, miles from any other DCFC.
- Analyzed the extent to which SMUD's electric transportation programs impacted EV adoption.
- Researched and verified technical solutions to reduce total installed cost of EV charging for commercial customers.
- Identified fleet vehicles suitable for EV replacements for five commercial customers and provided them with a total cost of ownership compared to gas or diesel vehicles.
- Contributed \$200K for the Del Paso Mobility Hub, which started grid interconnection and site construction in 2020. The Del Paso Mobility Hub will provide sensible, clean, affordable transportation and other social benefits to an underserved community, helping advance equitable electric transportation adoption in Sacramento, the state, and the country. The project is expected to be operational August 2021.

Time-of-Date Rates

Our residential customers reduced overall load in the range of 110-130 MW, similar to 2019 levels, despite the increase in residential load due to COVID. In addition to avoiding peak energy prices, customers, on average, saved money using more energy in the middle of the day when retail energy prices are cheaper, and renewables are abundant. Participation in the program has remained strong with 98% of customers on TOD rates.

Table C-3: 2020 Results of TOD Implementation

Benefits	Assumed based on pilot	2019 Normal Weather	2020 Normal Weather
Carbon reduction (tonnes)	3K-5K	12.8K	12.8K
Residential peak load reduction	75MW, or 5.8%	~130MW, or 8%	~110MW – 130MW, or 7-8%
Financial benefit	\$4M annually	\$5M estimated	\$6M - \$8M** estimated
Selection of TOD	96%	98%	98%

Zero Emission Resources

We are continuing to fund research and development efforts as well as pursue grants for clean energy and GHG reduction projects in 2020 and beyond as part of our 2030 Zero Carbon Plan. Below are some of those projects.

- Carbon Projects for Zero Carbon Planning. Completed high level techno-economic assessments of proven clean technology expansion opportunities (wind, on-shore and off-shore; solar; geothermal; biomass/biogas for RNG), long duration storage technologies, carbon capture, renewable hydrogen and gas pipeline analysis. Results of these assessments were utilized as inputs into the modeling and planning efforts for the Zero Carbon Plan.
- Assessment of Alternative Clean Fuels. The 2030 Zero Carbon Plan calls for a shift in the role of natural gas electricity generation towards decarbonization using carbon negative or carbon free fuel sources. This shift represents much of the flexibility built into the Plan. With the 2030 Zero Carbon Plan in mind, a study was initiated for deep understanding of the resource sustainability, existence of supply/suppliers, price forecasts, market trends, and the

economic/technical feasibility of these alternative biofuels that will facilitate decision making across many business units. The clean fuels to be researched in this project include ethanol, biodiesel, renewable diesel, RNG, hydrogen, and others.

- Wind Resources in Northern CA. In order to meet SMUD's 2030 zero carbon goals, SMUD may need to procure wind resources outside of the service territory. This project was initiated to perform a study of all the available wind generation resource in Northern California with the potential to be delivered to the SMUD Balancing Authority. This study will concentrate on turbine blade tip heights under 500', 600' and 700'. AECOM was tasked to complete this study by the end of 2021.
- Zero CI Electricity Pathway for Wind. Completed the first annual report submitted to CARB for Zero CI electricity pathway from wind energy systems. Monetized value garnered from LCFS credits from this Zero CI pathway is about \$1.0 Million with GHG reduction of about 5,202 MT (Q2 to Q4 2020 only).
- Long Duration Energy Storage Market (LDES) & Technology. This project addresses intermittency of higher penetration of renewable sources and lower costs in replacing thermal generation assets beyond the economics of Lithium-ion batteries. Comparative market and economic analysis of all long duration energy storage technologies (Chemical, Mechanical, Electrochemical, Thermal & Hybrids) to serve as an initial screening for future LDES in-depth studies. Analysis will identify pros and cons and will compare LCOEs, technology maturity, markets, benefits and challenges
- Long Duration Flow Battery Study. Initiated an assessment of the feasibility of using long duration flow batteries at the BESS/HEDGE site after PV3 is removed. LDES may serve as a viable alternative to traditional thermal plant operations.
- Geothermal resource opportunities. A follow-up study was initiated to identify geothermal project opportunities that would include identifying projects, engaging with developers, and providing resource technical due diligence to support SMUD with assessing possible opportunities for power purchase agreement.
- Allam Fetsvedt Cycle. Direct-fired, supercritical CO₂ power cycle with in-situ oxy-combustion designed to capture CO₂ is being investigated to understand its status and commercial opportunities, assess any technical issues, and potential applicability to help achieve SMUD's Zero Carbon Plan.
- LCFS Electricity Pathway for New Hope Dairy Digester. Completed the certification of New Hope Dairy Digester Electricity Pathway to charge EVs with CI score of -750.81 gCO₂/MJ (CI Deemed Complete: 1/1/2021, CI Certified on 6/28/2021, CI Start Date: 1/1/2021)
- Dairy Digesters e-RIN Applications. This project entails the development and submission of the biogas-to-electricity pathway applications for Van Steyn, Van Warmerdam and New Hope dairy digesters under the USEPA-Renewable Fuel Standard (RFS) otherwise known as electricity Renewable Identification Number (eRIN). This is Federal credits akin to LCFS credits that can be generated when electricity produced from dairy digester biogas is used to charge electric vehicles in SMUD Service Area or in California. If monetized, eRIN may amount to 12-33 cents/kWh, a financially fit proposition and supports the growth of electric transportation.
- Concentrating Solar with Thermal Energy Storage. Assessment of current CSP+TES technologies, levelized cost of energy and consideration of commercial viability of local or regional development prior to 2030.
- Long duration thermal energy storage. Feasibility analysis and cost assessment of long-duration, utility-scale, solid state energy storage solution.

Grant Funded Clean Energy Projects

- Hydrogen Blend Collaborative Research. Received \$12.45 M grant award from USDOE H2@Scale Initiative with NREL as the Prime Applicant for hydrogen blending research with participation from six National Laboratories and more than 20 industry and academia participants with combined cost share of over \$4 Million. This project will address the barriers on pipeline materials compatibility & degradation related to the blending of hydrogen into natural gas pipelines, a concept referred to as HyBlend. Blending hydrogen into the natural gas infrastructure has national and regional benefits by storing green hydrogen for energy storage, resiliency and emissions reduction. SMUD will provide data and will serve as one of the sites or use cases for injection point of H2. Data that will be provided will be used for techno-economic analysis to quantify costs and opportunities of H2 production and blending with natural gas. Completed the execution and kickoff of collaborative research agreement for this project.

Distributed Generation Studies

- PRECISE Project – Completed requirements and the QA environment integration. Unit tests were completed with oracle driver installation. Additionally, produced training material for SMUD Engineers on how to use PRECISE for evaluating PV interconnection applications and to identify advanced inverter settings that each PV system with a smart inverter is to be set to. Worked with NREL to further refine the development of this advanced interconnection assessment tool that won the 2019 R&D 100 award for deployment at SMUD.
- LCFS Electricity Pathway for Van Warmerdam and Van Steyn Dairy Digesters. Completed the first annual re-calculation of carbon intensities (CIs) and annual report with recent performance data that were submitted to CARB. Monetized value of LCFS credits from certified CIs for both Van Warmerdam and Van Steyn dairy digesters with over \$1.2 Million gross for both facilities and with total credits of 7,856 MT or GHG reduction (Q4 2019 to Q4 2020).
- DER Carbon Tool. Completed the development and expansion of DER planning and modeling tool that assess carbon reduction/savings, budgeting, portfolio optimization, cost effectiveness and load forecasting for EE and building electrification, electric vehicles (EV), solar PV, battery storage and flexible load measures.
- EPRI DRIVE. Completed the operational transfer of EPRI DRIVE evaluation software tool to Distribution Planning Engineers enabling them to more efficiently and effectively evaluate the technical impacts of DERs on distribution systems.
- Allume PV Disaggregation. Partner with Allume, developer of SolShare, which enables interconnection and management of electron flowing from a single PV array to co-located meters at a multifamily dwelling property, overcoming one of the main barriers to rooftop PV for multifamily properties not eligible for net-energy metering. Still in ideation, plan to work with owner/manager of multiple fourplexes serving predominantly low-income residents to test the functionality, billing accuracy, and feasibility of Allume's PV disaggregation software as an alternative to virtual net-energy metering for multifamily dwellings that are not designated affordable housing.

Climate Change and Carbon Reduction Research Projects undertaken in 2020

This program provides technical, economic, and policy expertise on climate change and impacts to SMUD territory supporting SMUD's IRP goals, assisting operations in addressing climate vulnerabilities, and creating opportunities for customers and community partners who support climate neutrality and regenerative projects with a net positive impact.

- Natural Refrigerant Incentive Program, which targets commercial and industrial systems, continued executing grant-funded field assessment and reporting on two new grocery store

installations, expected to deliver over 10,000 tons CO₂e reduction relative to conventional systems.

- Began planning for ecosystem service integration research at SMUD's Rancho Seco II Solar project, including soil carbon monitoring, native seeding and hedgerows, grazing and pollinator field studies (Delayed due to COVID-19)
- Completed research on physical climate impacts and summarized key findings relevant to SMUD's service territory, generation, transmission and sourcing locations.

Renewable Energy Programs

Greenery is a voluntary green pricing program that gives customers the option to support carbon free energy generation by paying a fixed monthly rate (\$4 or \$8) to match either 50% or 100% of their usage with renewable energy credits. When a customer enrolls in Greenery their usage is tracked according to their enrollment level. SMUD uses the proceeds from this program to purchase renewable or carbon free power or renewable energy credits to supply participants from generators located within the western US. These purchases are in addition to our RPS requirements.

In 2018, the CEC adopted new Title 24 Building Energy Efficiency Standards that, beginning in 2020, now requires solar on new homes, with some exceptions. These standards are expected to drive additional solar installations within SMUD's service territory. In 2020, the CEC approved SMUD's application for our Neighborhood SolarShares program to act as an alternative compliance method for California's rooftop solar mandate in the 2019 Title 24 Building Code.

Customer-side Solar Status

In 2016, SMUD achieved our SB1 Program funding goals for residential and commercial installations. Currently, there are remaining SB1 funded projects still under development. Additionally, residential and commercial solar systems are being installed under our net-energy metering tariff. In 2020, nearly 36 MW of customer solar was installed in SMUD service territory under net-energy metering agreements. Table C-4 summarizes solar installation data through 2020.

Table C-4: Installed Customer PV⁷

	SB-1		Residential		Commercial		Totals	
	Installed Systems	MW	Installed Systems	MW	Installed Systems	MW	Installed Systems	MW
2020	38	0.193	4,924	22.2	149	13.38	5,111	35.78
Totals	14,673	129.76	19,138	85.12	442	37.71	34,253	252.59

⁷ This table includes NEM, Solar Smart, VNEM installations, and projects funded with SB-1 dollars.

RESOLUTION NO. _____

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

This Board accepts the monitoring report for **Strategic Direction SD-9, Resource Planning**, substantially in the form set forth in **Attachment ____** hereto and made a part hereof.

SSS No.
CGS 2021-003

BOARD AGENDA ITEM STAFFING SUMMARY SHEET

Committee Meeting & Date
Policy Mtg 9/8/2021
Board Meeting Date
9/16/2021

TO				TO						
1.	Scott Martin			6.						
2.	Lora Anguay			7.						
3.	Stephen Clemons			8.						
4.	Jennifer Davidson			9.	Legal					
5.				10.	CEO & General Manager					
Consent Calendar		x	Yes	No If no, schedule a dry run presentation.		Budgeted	x	Yes	No (If no, explain in Cost/Budgeted section.)	
FROM (IPR) Rachel Huang				DEPARTMENT Customer & Grid Strategy, Research & Development				MAIL STOP B305	EXT. 6930	DATE SENT 8/19/2021

NARRATIVE:

Requested Action: Accept the monitoring report for Strategic Direction, SD-10, Innovation.

Summary: SD-10 supports innovation by investigating technologies, business models, and solutions that are sustainable, innovative, improve operational efficiency and provide financially positive benefits for SMUD customers and community. We measure the number of projects implemented, risk, and potential customer benefits. SMUD has developed a diverse portfolio of projects to assist in being competitive and improve our ability to deliver innovative products and services. The wide range of projects is designed to balance risk with potential environmental and economic benefits that will result in delivering our carbon reduction goals and a more sustainable energy supply for the region.

Board Policy: SD-10, Innovation
(Number & Title)

Benefits: The benefits for SMUD are many, including accelerated competitiveness, better innovative products & services, and an improved ability to meet SMUD's strategic directions such as environmental protection and climate change, reliability, local control, meeting energy efficiency and renewable energy goals.

Cost/Budgeted: Activities represented in the monitoring report were budgeted in the respective year of which the activity occurred.

Alternatives: Do not accept the monitoring report.

Affected Parties: Enterprise Strategy, Zero Carbon Energy Solutions, Customer & Community Services, Energy Delivery, Technology & Innovation

Coordination: Customer & Grid Strategy, Research & Development

Presenter: Rachel Huang

Additional Links:

SUBJECT

SD-10 Innovation

ITEM NO. (FOR LEGAL USE ONLY)

8

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: August 31, 2021

FROM: Claire Rogers *CR 8/31/21*

**SUBJECT: Audit Report No. 28007344
Board Monitoring Report; SD-10: Innovation**

Audit and Quality Services (AQS) received the SD-10 *Innovation* 2021 Annual Board Monitoring Report and performed the following:

- A review of the information presented in the report to determine the possible existence of material misstatements;
- Interviews with report contributors and verification of the methodology used to prepare the monitoring report; and
- Validation of the reasonableness of a selection of the report's statements and assertions.

During the review, nothing came to AQS' attention that would suggest the SD Board Monitoring report did not fairly represent the source data available at the time of the review.

CC:

Paul Lau

Board Monitoring Report 2021

SD-10 Innovation



1) Background

SD-10 States:

Delivering innovative solutions, products and services to our customers is a core value. To assure our long-term competitiveness, SMUD shall invest in research and development projects that support its core and key values, and integrate emerging technologies and new business models into SMUD's customer offerings in a way that balances risk, and opportunity, and benefits our customers and community.

2) Executive Summary

SMUD's R&D portfolio addresses innovation and challenges in *electric transportation, energy efficiency, building electrification, energy storage, generation, climate change, load flexibility and grid evolution*. The research provides insight into future planning and supports the development of near-term technology solutions for SMUD customers and the grid. SMUD's distributed energy strategy pursued technologies, business models and customer offerings to expand the use of emerging technologies by our customers, while enhancing value to SMUD and our community. A number of foundational initiatives were launched or expanded this year to support SMUD's Zero Carbon Plan (ZCP) goals and to integrate innovation into standard processes.

Our conclusion is that SMUD is in compliance with SD-10 Innovation.

SD Requirement	Purpose	Outcome	Notes
Project Implementation	Project distribution indicates breadth of portfolio diversity and prioritization of program areas.	65 active projects in 2021. 16 projects are complete as of August 1, 2021 ¹ .	This reflects a 55% increase in active projects and 27% reduction in completions compared to the previous reporting period.
Risk	Technology risk assesses ability to meet expected performance goals. Implementation risk assesses probability of deployment.	72% of projects are deemed low to medium-low technology risk. 77% are deemed low to medium-low implementation risk.	The risk portfolio is consistent with the previous reporting period. Potential risks are managed by creating a diversified portfolio and partnering with other entities to distribute risk and mitigation.
Benefits	Research stage and benefits timeframe indicate the relevance of portfolio to address customer needs and strategic planning.	80% of projects are in stages 4-5 ² . 92% are expected to provide benefits to SMUD or customers within 5 years.	Percent of stages 4-5 is higher than 2020's 76%, indicating more focus on near-term applications. Benefits time frame is consistent with 2020.

Table 1: SD Requirements Compliance

¹ Reporting metrics and achievements reflect the reporting period of October 1, 2020 – August 1, 2021.

² Stage 1 - Preliminary Investigation, Stage 2 - Concept Definition/Lab scale, Stage 3 - Concept Development (Prototype/bench scale), Stage 4 - Technology Development and Verification (pilot scale; field testing), Stage 5 - Commercialization

3) Additional Supporting Information

Project Implementation

Energy Strategy, Research and Development (ESR&D) has the primary responsibility of meeting SD-10; however, notable relevant innovation occurs throughout SMUD.

Electric Transportation (ET)

Transportation electrification will improve air quality and reduce net greenhouse gas emissions and petroleum consumption to support energy sustainability, while creating new revenue streams for SMUD. This strategy is supported through investigation of mitigation of grid impacts due to charging, improvement of electric vehicles (EV) value via pricing signals and remote controls, increased EV adoption and access to charging.

Key Achievements:

- Del Paso Mobility Hub began construction to provide clean, affordable transportation to an underserved community, helping advance ET social equity.
- Issued RFP for the Charging as a Service program and Fleet Advisory Services. Contract for services will go to the Board for approval this fall.
- Awarded two CEC grants: Blueprints Grant to develop plans with SMAQMD and the City of West Sac for grid infrastructure to deploy EV charging and fuel cell EV hydrogen fueling infrastructure supporting medium- and heavy-duty fleets; and BESTFIT grant supporting the managed charging and vehicle-to-grid demonstration at Twin Rivers School District.
- Ordered five customized electric medium-duty Zeus trucks for SMUD's fleet.
- Received EPRI Technology Transfer Award for our collaboration on modeling work that established incremental benefits of EV programs on EV adoption.
- Completed our first annual attribution study which confirmed that our electric transportation programs are increasing EV adoption as planned.

Energy Efficiency (EE) & Electric Buildings (EB)

This program area optimizes energy delivery costs and improves grid asset utilization through targeted, time-specific energy efficiency and building electrification as well as by capturing permanent outcomes in building codes. ESR&D explores emerging and underutilized technologies; working to enhance advanced applications in building decarbonization and energy efficiency and increase technology adoption

Key Achievements:

- Supported the City of Sacramento in adopting a local ordinance requiring all-electric new construction starting 2023, with few exceptions.
- Characterized local restaurant market and assessed multiple prototype designs for opportunities and technical barriers to electrification.
- Analyzed technical options to help customers adopt electric technology without requiring grid service upgrades, which can have large financial impacts for the ~80,000 accounts with electric service cables buried directly underground.

- Develop Electrification Readiness and Future State Ideation planning reports, to describe how SMUD's incentive programs can scale to reach statewide goals.
- SMUD is a founding sponsor of the Advanced Water Heater Initiative, which works nationally to drive increased penetration and operation of heat pump water heaters and received support from the U.S. DOE in May. Delivered the "Building Demand for Unitary Heat Pump Water Heaters" report under this effort.
- Established working group to assess the feasibility of a local electric kitchen innovation center, including local community members, and SMUD staff.

Energy Storage (ES)

Significant research is needed to enable storage as a reliable and integrated grid asset. ESR&D seeks to evaluate solutions that align customer benefit with grid needs by enabling behind the meter energy storage to act as virtual power plants and establish grid storage solutions to increase renewables integration while maintaining reliability.

Key Achievements:

- Procured 9.03 MW of storage, including dairy biogas using lagoon digester and 389 customer installations (2.62 MW as of Aug. 4, 2021) to support future Load Flexibility programs, exceeding target set for 2020.
- SMUD's first utility-scale battery project, 4.4 MW/8.8 MWh adjacent to Hedge substation, began construction in May 2021, expected completion Sep. 2021.
- Received EPRI Tech Transfer Award for Energy StorageShares program.

Generation

ESR&D pursues innovative generation solutions, including customer products, rate design support, and continuous improvement of related business processes. This program supports system reliability, reducing revenue erosion, and reducing emissions through alignment of DERs and low/zero-carbon generation with grid needs.

Key Achievements:

- Provided technical guidance and input on the Value of Solar Study, leading to adoption of new solar+storage rate reducing cross-subsidy to PV customers.
- SMUD is one of 20+ industry and academia participants and six National Labs collaborating on \$12.45M DOE grant for hydrogen blending research.
- First annual re-calculation of carbon intensities of Van Warmerdam and Van Steyn dairy digesters. Monetized \$1.2M LCFS and reduced 7,856 MT of GHG. Completed new certification of New Hope Dairy Digester Electricity Pathway.
- Submitted first annual report to CARB for Zero CI electricity pathway from wind energy systems. Monetized ~\$1.0M for 5,202 MT CO₂ reduction.
- Expand DER planning and modeling tool to include solar PV and battery storage for assessing carbon reductions, portfolio optimization, and load forecasting.

- Techno-economic assessments of carbon free generation, long duration storage, carbon capture, and gas pipeline analysis were instrumental inputs into the modeling and planning efforts for the Zero Carbon Plan.

Grid Evolution

This program seeks to accelerate interconnection of grid-connected systems and devices to ensure safe and efficient operation. It seeks to improve grid reliability through reduced outage frequency and duration; control of the distribution system, voltage and frequency variations, and overload conditions; and optimize grid benefits of DERs through advancing integration standards and coordinated automation.

Key Achievements:

- Installed online bulk transformer monitoring system to enable lower cost, streamlined maintenance and comply with NERC requirements.
- Installed 3M Spartan II equipment monitoring sensors on the downtown network at two vaults and one manhole to monitor and alarm for hazardous gas levels.
- Concluded Blockchain Local Energy Market demonstration, rewarding EV drivers who automate charging sessions based on carbon intensity and wholesale costs.
- Developed interface for SMUD's Price Communication Application to integrate with OSI DERMS to support DER load flexibility programs.

Climate Change

This program provides technical, economic, and policy expertise on climate change and impacts to SMUD territory. It compliments SMUD's Zero Carbon Plan and aligns with our board direction to address climate vulnerabilities, and we partner with our customers and community on mitigation opportunities and regenerative, net positive projects.

Key Achievements:

- Completed Year 1 assessment of pilot natural refrigerant systems and continued field monitoring to ensure robust financial and environmental analysis.
- Established partnership with UC Davis and EPRI to evaluate Rancho Seco II Solar soil carbon storage and pollinator habitat restoration opportunities.
- Launched Monarch Habitat Suitability and Solar-Pollinator assessments.
- Updated projection of physical impacts of climate change in SMUD territory, locations of generation and transmission, and critical equipment procurement.

Load Flexibility

This program supports cost-effective, reliable, scalable flexible resource growth to serve future grid needs. ESR&D determines functional, operational and market viability of flexible loads to align supply and demand, give customers bill management options, improve air quality, and reduce carbon emissions.

Key Achievements:

- Developed 10-year Zero Carbon strategy and implementation plan for flexible DERs to support the retirement and retooling of our thermal plants.
- Initiated competitive bid solicitation for an aggregator to reduce peak demand by 30 MW by 2024 via price signals to customer DER devices.
- Initiated Oracle Behavioral Demand Response pilot research.
- PowerMinder pilot determined heat pump water heaters can effectively shift load and support 2030 Zero Carbon implementation plan for load flexibility.

Enterprise-Wide Innovations

While SD-10 innovation goals are met by ESR&D research programs, additional notable achievements occurred across SMUD supporting progressive customer offerings.

- Launched virtual energy audits, engaging customers in a safe and convenient way while resulting in operational efficiency and cost reduction for truck/car rolls.
- Demonstrated a central IoT platform successfully providing remote management, data collection, analytics and visualization for grid assets (transformers, telecom batteries, and generators). Phase 2 will expand to customer DERs.
- Participated in the CMC as a Founding Member to identify advanced mobility solutions and startups.
- Formed the Innovation team to support our 2030 absolute zero carbon goal by balancing diverse emerging technologies and ideas across SMUD that drive operational efficiencies and competitive advantage with a centralized team to champion breakthrough innovations. The Innovation Governance Team reviewed 63 technology and business model submissions for inclusion in the ZCP.
- ADMS development complete, resolving variances. Expected go-live Q4 2021.
- DERMs Phase 1 development work complete. Phases 2-3 are in progress.

Summary

With the adoption of the 2030 Zero Carbon Plan, we've ramped up efforts in generation and load flexibility technologies and business models leveraging storage, electric transportation, and building science, while we continue to advance research in climate change and grid modernization. These innovations expand customer choice and offer new solutions toward a low carbon future. Our diverse portfolio helps maintain long-term competitiveness and balance risk with potential environmental and economic benefits, ensuring community benefits.

4) Challenges

2021 posed unique challenges due to the ongoing health pandemic and pivots to support development of the Zero Carbon Plan and NEM successor rate. In response, ESR&D revised project designs to reflect the new work environment and focused staff hours and expertise to deliver on innovation goals driving toward zero carbon.

5) Recommendation: Recommend the Board accept the SD-10 Monitoring Report.

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Table 2: ESR&D Projects

Research Program	ID	Project Name	Project Description	SD-10 Benefits	Start Date	End Date	Ward
Building Electrification	12	Electrification Readiness Study	Conduct an expedited utility industry analysis to identify key insights from utilities, community choice aggregators (CCAs), and other key market actors to accelerate electrification programs. The analysis inform a research-based approach for accelerating SMUD's own electrification programs.	Establishes a new paradigm for how research informs the development of incentive programs. Identifies opportunities for incentive programs to maximize outcomes like GHG savings, equity, and affordability. Creates rapid feedback on the performance of new technologies within programs.	8/20/2020	1/28/2022	All
Building Electrification	13	Advanced Water Heating Initiative	SMUD is a founding sponsor of the Advanced Water Heater Initiative, which seeks to dramatically expand the heat pump water heater market using advocacy, program alignment, and research. The U.S DOE supports the initiative.	The project will set out a consensus agenda and process for water heating research, specifically joint research between utilities. It will also bring together best practices to ensure that SMUD and other utilities are implementing the most innovative possible programs based on available knowledge.	7/1/2020	12/28/2021	All
Building Electrification	67	St. Francis Manor Central HPWH Study	Monitor the conversion of St. Francis Manor to a hybrid HPWH/gas fed system with storage. Analysis of system performance and benefits.	Confirm the realized savings and benefit of replacing existing boiler and gas-powered hot water systems in a central plant.	4/1/2021	5/2/2022	5
Building Electrification	9	Restaurant Market Analysis and Feasibility Study	Conduct market analysis and electrification feasibility study to document the current restaurant market in Sacramento County, and identify barriers and opportunities for restaurant electrification.	Characterized the types of restaurants in the Sacramento-region market. Developed the basis of design for electric equipment to meet the foodservice needs for a variety of restaurant prototypes. Identified gaps in equipment availability for specific applications.	10/16/2020	12/31/2020	All
Building Electrification	10	Central Heat Pump Water Heater Meta Study	Documents best practices and experiential findings regarding design and use of central heat pump water heaters in multifamily buildings (new construction and retrofit).	Provided best practices to guide SMUD in planning programs and research efforts to accelerate the electrification of multifamily water heating systems.	9/2/2020	12/17/2020	All
Building Electrification	11	Direct Bury Analysis	Identify the locations, characteristics, and electrification market barriers for customers who are currently served by direct burial cables (DBC).	This will provide insights into the characteristics of DBC customers, and the related challenges to SMUD's decarbonization efforts.	9/28/2020	12/31/2021	All
Building Electrification	110	Sanden Heat Pump Water Heater Project	Assess the performance and feasibility of Sanden C02 heat pump water heaters at two fourplexes. The owner of these fourplexes is interested in converting from natural gas to all electric and owns over twenty identical fourplexes in SMUD's service territory.	Finding cost effective solutions for converting from natural gas water heaters to HPWHs in multifamily residences to achieve SMUD's decarbonization goals and provide a path forward for the thousands of low-income customers who dwell in fourplexes.	6/19/2019	12/7/2020	6

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Climate Change	64	Carbon Farming and Ecosystem Service Research at RSSII	Conduct field experiments at Rancho Seco to research ecosystems and evaluate the use of native species/pollinators to reduce the operational costs associated with vegetation management, erosion control, and fire protection. The project will explore the effects of vegetation and panel layout on PV generation and soil carbon.	The project will help identify and demonstrate strategies to integrate ecosystem services and agricultural value into large scale solar projects, helping to mitigate their environmental impact and build public support for their continued construction, assisting SMUD in achieving the 2030 ZCP.	1/30/2021	1/30/2026	2
Climate Change	96	EPRI Evaluating Landholdings for Monarch Habitat	The SMUD Pollinator working group will determine recommended actions, including proposed acres, timing and cost for enrollment in the CCAA, if appropriate.	Assists SMUD in understanding opportunities and costs associated with enrollment in the Monarch butterfly CCAA and compliance with a potential future Endangered Species Act listing.	3/1/2021	1/31/2022	All
Climate Change	95	EPRI Power in Pollinators	SMUD pollinator Working Group has been meeting monthly for over a year. Working on policy recommendation for integration of pollinators into utility scale solar procurement and future operations and on the launch of a major research project at RSSII. Supporting the EPRI supplemental on Monarch Habitats and the working group on cost/benefit of solar + pollinators.	SMUD will be prepared for increasing public focus and demand for pollinator support on large land holdings. Opportunity to be proactive and strategic in expanding our solar project benefits and bringing in new supportive stakeholders (agricultural interests, groundwater management, for example)	1/1/2020	12/31/2022	All
Climate Change	109	Natural Refrigerant Incentive Pilot Program	Provides incentive for customer natural refrigerant systems, replacing super-polluting conventional refrigerants with high global warming potential. SMUD's first incentive program based on GHG reduction, not kWh savings. Monitored field pilots are underway at Grocery Outlet and Raley's stores in Sacramento.	DEED grant funding (\$125K) was secured to support the Grocery Outlet project and technology transfer. First of its kind for the utility industry, this program demonstrates SMUD's leadership in leveraging relationships with our customers to help them save money and reduce GHG emissions in the region.	1/1/2018	12/31/2023	All
Climate Change	90	NG Alternatives & Upstream Emissions Update	Document the emissions profile of SMUD's current gas supply chain and compare that with various alternative gas supply solutions. Summarize research findings of lifecycle costs and benefits associated with energy sources SMUD requires in its current and future supply portfolio.	This is an opportunity to reduce the upstream emissions of gas supply chains that are primarily tied to the procurement process and selection of suppliers. Allows for more comprehensive assessment of the big picture issues of interest to stakeholders.	3/1/2021	7/30/2021	All
Electric Transportation	22	Residential Managed EV Charging	Actively manage residential EV charging times and electrical flow rates. Managed EV charging can enable deferral of distribution system upgrades, smooth the duck curve, reduce renewable generation curtailment, and provide import and export arbitrage opportunities.	Benefits include reduction of the financial risks associated with transportation electrification, specifically by mitigating the risk of overloading electrical distribution infrastructure. Another secondary mitigation measure is to better align energy delivery for charging with low-cost energy supply.	10/1/2021	12/31/2023	All
Electric Transportation	20	Twin Rivers Managed	Incorporate electric school buses and light duty vehicles to evaluate the effectiveness of managed charging and vehicle-to-grid capabilities	Reduce grid impacts, reduced customer infrastructure build-out cost, wholesale energy or capacity cost avoidance, and mirror	1/30/2021	6/30/2023	5

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		Charging and V2G	to balance impacts on customer and utility electrical distribution and create value through grid services.	characteristics of stationary storage using V2G.			
Electric Transportation	15	Zeus Electric Truck Deployment	This project is in partnership with the CMC and works with the start-up company Zeus, who develops medium-duty electric trucks. SMUD will purchase and test five vehicles in SMUD's fleet.	Inform customers of the challenges and benefits of fleet electrification. This project synergizes with the launch of the California Mobility Center which will support local economies and improve health and safety in DACs.	1/3/2022	6/30/2022	All
Electric Transportation	17	Del Paso Mobility Hub	Help create an e-Mobility hub for different modes of transportation, such as taxis, Uber, Jump, buses, etc. It will also include EV charging capability as well as gig cars. The first project in execution is the Del Paso Mobility Hub.	This is a novel project and transportation facility concept. It includes electric and fuel cell vehicles, including an electric shuttle, EV charging, shared vehicles, electric micro-mobility (ebikes and electric scooters) and transportation services.	6/1/2021	12/31/2022	5
Electric Transportation	21	EPRI Qualification of EVSE	Produce a compliance matrix for EVSE that SMUD will be able to use to qualify EVSE vendors for our EV-related programs	Support EV adoption and reduce risk to SMUD by using only qualified EV supply equipment vendors in SMUD's EV programs.	1/6/2020	5/31/2021	All
Electric Transportation	18	Mobi EV and Gen Charger Loan Pilot Program	Evaluate viability and logistic application of mobile EV chargers and battery powered generators to support development of transportation electrification and elimination fossil fuel generators. SMUD loans the units at no cost to customers who can demonstrate they have a need.	Determine challenges and opportunities of using EV chargers and battery powered generators, which will help support the development of electric transportation as well as reduce GHG emissions and criteria pollutants.	8/3/2020	12/31/2021	All
Electric Transportation	24	SMUD-Owned EVSE	Operation and maintenance of SMUD's public level 2 and DCFC charging stations.	Increase EV adoption by having publicly available working charging stations in high trafficked areas.	1/1/2014	On-Going	All
Electric Transportation	19	EV Annual Program Attribution Study	This project assesses SMUD's current electric transportation programs impact on EV adoption in SMUD's territory and informs cost effectiveness of programs in the portfolio.	Provide insight into SMUD's investment impacts on EV adoption. Enable communication of program effectiveness.	9/1/2020	4/30/2021	All
Energy Efficiency	65	CalTF	Co-funding CalTF's development of the eTRM (Electronic Technical Resource Manual) as the basis for IOU EE program deemed measure savings. The eTRM adds functionality for POUs to use available data and transition to transparent accounting of savings, including Carbon. POUs can set different baselines for measure savings than the IOUs.	SMUD will benefit from a centralized California eTRM online repository for all statewide deemed measures. The platform will ensure the accuracy, transparency, and accessibility of all deemed measure values, supplementing our current approach of conducting M&V studies every three years.	1/1/2018	12/31/2021	All
Energy Efficiency	4	2020 Codes & Standards Savings Attribution	Quantification of the energy and carbon savings attributable to SMUD for our influence on the development of California Title 24 Building Energy Efficiency Standards, California Title 20 Appliance Standards and Federal EnergyStar regulations.	This project quantifies the energy, demand and carbon savings attributable to SMUD based on our annual participation in the California Statewide Codes & Standards Team in partnership with the CA IOUs and LADWP.	12/16/2020	2/28/2021	All
Energy Storage	58	Alternative Fuels to	HQ Solar Port is a potential site to test a fuel cell backup system and support microgrid operation. The fuel cell will be a 1 kW 8-hour	As the first fuel cell back up system for SMUD we will be able to test the system and determine if it is a good alternative to our	7/31/2020	7/31/2022	3

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		Replace Diesel Generators	duration backup power system. R&D staff will monitor the selected alternative fuel source system for 9 months.	current fossil fuel backup generators. The data we collect will inform SMUD on future backup power replacements.			
Energy Storage	7	C&I Energy Storage Programs	Promote the deployment of behind-the-meter energy storage for Commercial and Industrial customers and their participation in a Commitment to Operate program, discharged at peak usage time.	Supports future work in the Zero Carbon Plan as well as educating our commercial customers about the types of energy storage appropriate for their business and energy usage. These deployments will decrease load on the grid and save the customers money.	1/1/2021	12/31/2021	All
Energy Storage	6	Hedge Utility-Scale Battery	4 MW/ 8 MWh battery located behind the Power Academy off Tokay Lane and is the deployment for the StorageShares program and will demonstrate functionality use cases.	As SMUD's first utility-scale battery, we will be able to test different modes and how it interacts with the grid. The data collected will inform future battery installations in SMUD territory.	3/1/2019	12/31/2023	3
Energy Storage	26	Integrated EV Charging with Storage and Solar PV	Install and test a new 175 kW DC Fast Charger and 2nd-life battery storage. Integrate solar, storage, and EV charging into an advance site controller.	Integrate EV DC Fast charging, 2 nd -life battery storage and solar PV together to mitigate peak demand and storage excess solar generation Measure the performance of 2 nd -life batteries compared to newer lithium-ion battery systems. Help promote EV adoption by using load management to prevent unnecessary infrastructure installations, ultimately saving the customer and SMUD time and money.	11/5/2018	12/31/2021	3
Energy Storage	5	Residential Energy Storage Programs	Continuation of Residential BTM energy storage systems including Commitment to Operate, SmartEnergy Optimizer, and PowerMinder.	Residential BTM energy storage are customer-facing innovations that will provide resilience and system benefits to customers and SMUD alike. This work will inform future pilots including Multi-DER and Capacity Contracts VPPs.	1/1/2021	12/31/2021	All
Energy Storage	66	Energy Storage-Shares	Allow eligible commercial customers the opportunity to purchase shares in a utility scale battery to for peak price shaving without the operation and maintenance of owning their own battery.	The capital investment from the customer allow SMUD to offset the cost of the utility scale battery and locate the battery in a location which is beneficial to the grid.	12/1/2019	12/31/2021	All
Energy Storage	29	Sunverge in Schools	Partner with schools to install eight battery energy storage units at high schools or colleges to provide early hands-on education of battery energy storage systems.	Support local workforce development by developing a battery energy storage curriculum and installing battery energy storage system at educational institutes.	1/1/2021	12/31/2021	All
Energy Storage	111	AB 2514 Energy Storage Programs & Research	Procure 9 MW of energy storage by December 31, 2020. Develop and research behind-the-meter energy storage pilot-programs for early adopters to understand how energy storage is being used and the effect on the grid.	The project seeks to determine emerging storage technologies commercial readiness, applications, benefits and costs; and grid impacts.	4/26/2018	12/31/2020	All
Energy Storage	30	EPRI- Hazard and Fire	Perform a site specific hazard assessment of the Hedge Solar Farm Battery Energy Storage System.	Ensure the Hedge Solar Farm Battery Energy Storage System is designed and built to the new fire code and safety standards.	1/1/2021	4/30/2021	3

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		Prevention and Mitigation Study		This will directly influence fire and safety requirements for future battery installations.			
Energy Storage	27	Back Up Power as a Service Market Assessment	This project will evaluate the potential of Back-Up Power as a Service which will help define alternative business models that may enable a faster, more efficient reduction of local GHG emissions while saving customers money. SMUD is interested in the benefits these solutions could provide to both commercial and residential customers.	This preliminary evaluation will help SMUD understand the market potential, associated costs overall environmental impact and potential business models for providing backup power as a service to our customers.	10/14/2021	12/31/2020	All
Generation	54	Assessment of Microgrid Business Models & Applications	Assessment of technical and economic potentials, market trends (e.g. supply curves), market players/suppliers, costs and performance of applicable microgrid systems. Develop standardized processes/guidelines for the interconnection of a customer-supported microgrid in compliance with SB1339 and identification of potential deployment sites.	This project will provide techno-economic feasibility and market assessments to determine the microgrid value proposition as well as best practices for technology choices, siting, and market participation.	4/1/2021	12/31/2021	All
Generation	81	Assessments of Alternative Fuels (Generation)	SMUD will hire a consultant to explore the feasibility of using renewable ethanol, biodiesel, renewable diesel, RNG & others as potential fuel-sources for our thermal generation assets.	This assessment will facilitate enterprise decision-making, providing a deep understanding of the resource sustainability, supply chain landscape, price forecasts, market trends, and techno-economic feasibility of each biofuel.	4/28/2021	4/28/2022	All
Generation	53	Community Resiliency Center	Identify Sacramento community centers that have been designated as emergency evacuation centers or cool zones featuring convenient interconnection. A battery system will maintain power to the site during grid outages and operate as a DER asset.	Enhance safety and customer resiliency by providing backup power for critical services (cool zone and electric vehicle charging). Help prevent revenue erosion from customers moving to off-grid solutions, increase revenue through market participation and potentially mitigate upgrade costs for distribution system infrastructure.	5/6/2021	5/11/2024	TBD
Generation	41	Fuel Reduction Wildfire Prevention / Resiliency Biopower	Assess opportunity to mitigate wildfire danger and protect communities along the UARP transmission corridor by reducing fuels. Biopower produced will charge electric vehicles, reduce GHG emissions, and generate LCFS credit revenues.	Mitigating fire danger in SMUD service areas while generating revenues via LCFS credits. This essential wildfire mitigation protects critical infrastructure, system integrity, customer health, and public safety.	4/1/2021	12/31/2021	All
Generation	78	Highview Power	SMUD will hire one a consultant to conduct a feasibility study and deep dive techno-economic analysis for Highview Power (liquid air thermal energy) long-duration energy storage technologies.	HighView Power installations will allow for comparative analysis to determine if Cryogenic LDES helps SMUD reach 2030 ZCP goals.	4/28/2021	4/28/2022	All
Generation	52	HQ Solar Port Microgrid	Install and commission a small microgrid at the HQ Solar port using second-life batteries, solar and an advance site controller.	Microgrids can increase reliability by providing backup power to customers during power outages using renewable generation,	1/1/2021	12/1/2022	3

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				reduce transmission infrastructure needs, and hedge against volatile energy markets.			
Generation	91	Hydrogen Blend Collaborative Research	Address the barriers on pipeline materials compatibility and degradation related to the blending of hydrogen into natural gas pipelines, a concept referred to as HyBlend. SMUD will provide data and serve as one of the injection points of H2. The data that will be provided will be analyzed to quantify the costs and opportunities of H2 production and integration into the natural gas system.	The HyBlend project will specify the role Hydrogen can play in the transformation of SMUD's thermal generation. HyBlend is a leading fuel choice that offers benefits for seasonal energy storage, resilience, and GHG emissions reductions.	7/1/2021	7/30/2023	All
Generation	87	LDES Market & Technology Report	SMUD will hire a consultant to investigate the following Long Duration Energy Storage (LDES) strategies: liquid air energy storage, incline railway storage, crane and block system, Piston pump, concentrated solar/thermal.	Empower SMUD planners to make confident technology decisions along the flexible path to zero carbon. These technologies will provide grid stability and predictable electricity prices for SMUD customers.	4/29/2021	4/29/2022	All
Generation	34	Dairy Digesters eRIN Applications	Develop and submit the biogas-to-electricity pathway applications for Van Steyn, Van Warmerdam and New Hope dairy digesters under the Renewable Fuel Standard (RFS) for electricity Renewable Identification Number (eRIN) credits, generated when electricity produced from dairy digester biogas is used to charge electric vehicles in SMUD Service Territory.	The use of eRIN credits could unlock \$0.12/kWh to \$0.33/kWh of electricity generated for electric vehicle charging. This legal and financial innovation offer sound investment into biofuels production and carbon-negative transportation for electric vehicles.	1/1/2021	12/31/2021	7
Generation	55	DER Carbon Tool	Expand DER planning and modeling tool that assesses carbon reduction/savings, budgeting, portfolio optimization, cost effectiveness and load forecasting to include solar PV and battery storage measures.	Provide hourly forecasting of load shapes, evaluate carbon impacts and cost effectiveness for programs. Provides insights about DER valuation and the attribution of GHG reductions.	11/1/2020	12/31/2021	All
Generation	39	LCFS Electricity Pathways for Dairy Digesters, Solar and Wind	LCFS Electricity pathway applications for Van Warmerdam, Van Steyn and New Hope dairy digesters, wastewater biogas and wind/solar that perform carbon intensity life cycle modeling, certification, verification, monetization, and reporting for LCFS credits to charge electric vehicles in SMUD territory. This initiative stimulates revenue generation, supports the growth of electric transportation and advanced renewable generation and helps achieve carbon zero target goal.	At full utilization of the 30 dairies and 14,000 cows in SMUD territory, the dairy digesters could offset a minimum of 70,000 Metric Tons of CO2 per year, while garnering \$12.6 Million per year in LCFS credits. In 2021, Van Warmerdam and Van Steyn reduced 7,856 MT of GHG worth \$1.2M LCFS. This project also proved the financial viability of Zero Carbon Intensity (CI) wind generation, which garnered approximately \$1 Million from LCFS.	6/1/2019	12/31/2030	All
Generation	38	PRECISE Project Phase 2	Evaluate PV interconnection applications and identify the advanced inverter settings that each PV system to be set to. This process will significantly save SMUD engineer's time and yet maximize the benefit of each asset.	Increased safety and avoiding reprogramming of advanced inverters post-install, and minimizing curtailment. Deploying the tool in a real utility environment would advance chances of commercialization of PRECISE and revenues to SMUD.	1/1/2019	6/30/2021	All

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Generation	75	Wind Resources in Northern CA	This study will help SMUD identify sites in Northern California suitable for adding wind generation. The work will be performed by a consultant.	Identifying areas outside of SMUD's service territory suitable for wind resource, will enable SMUD to remain on track to meet the 2030 carbon reduction goals.	4/28/2021	4/28/2022	All
Generation	71	Carbon Neutrality Projects for Zero Carbon Planning	Techno-economic assessments of the full range of proven clean technology expansion opportunities in the generation, storage, and alternative fuels segments. Evaluated the cost-effectiveness, performance characteristics, Levelized Cost of Energy, challenges. Determined the necessary inputs required for production cost models and scenario analysis.	Assessment of zero-carbon technologies could provide the sustainability and resilience needed to achieve the aggressive 2030 ZCP targets. All the studied technologies are expected to be commercially available for SMUD's use by 2030. The results of this study provided useful information towards completion of the ZCP.	10/1/2020	4/1/2021	All
Generation	37	EPRI: DRIVE Tool	Distribution Resource Integration and Value Estimation (DRIVE) enables planners to evaluate the technical impacts of DER penetration on distribution systems. Determines ability to host DERs on distribution feeders without causing adverse impacts to power quality or reliability.	Provides a starting point for analyses of distribution system DER capacity, asset upgrades deferral, cost savings, and mitigation strategies.	1/1/2018	12/31/2020	All
Grid Evolution	42	Direct Connection Smart Inverter	Install a direct connection, CSIP-capable, smart inverter to determine if smart inverters can provide reliable visibility of residential PV.	Benefits of smart inverters include a better way to monitor residential PV and storage as well as advanced control functionality to assist us in grid support needs.	7/1/2021	12/31/2023	All
Grid Evolution	101	EPRI Substations SF6 Alternatives	The EPRI study will conduct high voltage tests on a range of alternatives, study the safe and effective handling, operation, maintenance, and disposal of these new alternative approaches, and study the tradeoffs utilities will face after implementation.	Access to insights discovered by EPRI that will help our ability to comply with regulations to phase out the use of SF6 gas after January 1, 2025.	7/1/2021	12/31/2022	All
Grid Evolution	47	Blockchain Local Energy Market	Coordinate EV charging and with PV generation by using local grid conditions and blockchain-based incentives. Employees in SMUD's Workplace EV Charging program will use a mobile application to make daily choices to have their charge timing flexibly optimized to accumulate incentives.	SMUD Customers could benefit from savings on EV charging costs and recognition for contributing to increased renewable energy adoption. SMUD could realize reduced costs through lower wholesale energy costs and deferring local infrastructure investments necessary for increased EV and PV adoption.	4/1/2019	9/30/2021	2
Grid Evolution	80	EPRI 2021 Utility Blockchain Interest Group	Work alongside other utilities to expand knowledge of blockchain technology and its potential applications. Enable collaboration among utilities and bridge to the startup/vendor community, compile and track a comprehensive list of global utility blockchain pilots and extract and document industry trends, lessons learned and key insights.	Through a collaborative approach, expand utility knowledge of blockchain technology and its potential applications in the industry. Enable collaboration opportunities among utilities and act as a bridge to the startup/vendor community.	1/1/2021	12/31/2021	All
Grid Evolution	36	EPRI SHINES	Beneficial integration of solar PV, energy storage, load management, and solar forecasting. EPRI will test the architecture at three sites to compare configurations and size, as well as grid connections, and solar generation variability.	Enhanced grid operations, increased PV deployments, time shifting of solar generation, improved generation/load profiles, reduced grid impacts and interconnection processing time and cost.	11/1/2019	6/1/2021	All

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Grid Evolution	100	EPRI Transmission & Substations Collaboration	Participation in this EPRI collaborative enables SMUD to stay current on industry-wide EPRI R&D, including results of advanced technology testing, software tool development, reference guides and the application of research results.	Apply EPRI tools and research results in Overhead Lines, Underground Lines, Substations, and Asset Analytics. Increased knowledge of failure rates and emerging issues by contributing to and accessing EPRI's T&S Asset Industry-Wide Databases.	1/1/2021	12/31/2021	All
Grid Evolution	45	Transmission Line Monitoring	Test the achievability and usability of Dynamic Line Ratings (DLR) to inform short-term operational and long-term planning decisions, using the LineVision V3 monitoring system.	Increases efficiency of transmission asset utilization while maintaining reliability. Advanced line rating methodologies can result in cost savings and operational benefits.	4/22/2021	12/31/2023	All
Grid Evolution	61	3M Spartan II	The Spartan units will be used to gain visibility on the downtown network where we currently have none.	Savings on SCADA for the downtown network and reduction in time for restoring service.	11/5/2018	11/5/2021	5
Grid Evolution	63	Transformer Online Monitoring	Installation and testing of Online Transformer Monitoring on two 230/69 kV substation transformers. Monitoring includes oil analysis for asset health and Geomagnetically Induced Currents for NERC compliance.	Identify problems before transformer failure, maintain an accurate asset health index, identify if a different mode of operation is needed, and better predict the asset's end of life.	9/1/2018	8/31/2021	All
Grid Evolution	62	69kV Advanced Line Sensor	Evaluate the leading 69kV fault indicator sensor products. Install viable sensors on the grid and review their performance.	Visibility for the ADMS.SAIDI SAIFI impact with faster fault location identification and system restoration.	3/1/2017	6/30/2021	All
Grid Evolution	46	Communication Architecture for Secure DER	This EPRI project will leverage expertise from utility members, the vendor community, and other industries to develop and demonstrate secure communication architectures to enable coordinated control of DER.	Advancement of standardized interfaces will promote competition amongst communications solutions providers to drive quality up and costs down. By influencing national standards, SMUD can facilitate DER adoption and realize the many grid benefits of coordinated DERs.	12/13/2017	11/11/2020	All
Grid Evolution	43	PCA Pilot Enhancement	Demonstrate and enhance the Price Communication Application to provide dynamic pricing coordination for partner projects automating DER technologies for: Residential and Commercial Storage, Heat Pump Water Heater, and Thermostat Optimization Pilots.	Enable Price-based DER automation pilots and systems enhancements for: Residential and Commercial Storage, Heat Pump Water Heater - Thermostat Optimization	8/1/2018	12/31/2020	All
Load Flexibility	69	EnergyKit HEMS Proof of Concept	Ynventive is designing, building, and testing the EnergyKit, as well as demonstrating its effectiveness at a chosen site in Davis, CA. SMUD is providing inputs on typical home energy use patterns and technological considerations pertaining to SMUD's operations.	Successful development may persuade Panasonic and NEDO to match up to \$20M in DOE or CEC grant funding to deploy a field demo to dispatch customer loads using price signals with the confidence and reliability of a VPP product.	4/30/2021	12/17/2021	All
Load Flexibility	49	Multi-DER VPP	This project will research the ability of the proposed solution to orchestrate a diversity of qualifying residential customer -sited devices to deliver load flexibility needs throughout the year and to assess whether it makes sense to continue to scale-up.	Upon successful completion of the Multi-DER VPP, SMUD will have a guaranteed, load flexible residential program. This load will be integrated with the DERMS and allow SMUD to operate as required for business needs (EIM/RA/Emergency).	1/5/2021	12/31/2026	All

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Load Flexibility	50	Commercial TES Phase II	Commercial TES Phase II will be a live pilot of this operation based on CalISO day ahead pricing.	Cost to serve and cost to operate will be reduced. Justification for a customer incentive to modify their existing TES operation or install a new system.	3/3/2019	3/17/2023	All
Load Flexibility	99	Oracle BDR Evaluation	R&D will provide a 3rd party evaluation of Oracle Behavioral Demand Response (BDR) to confirm results. This project aims to fulfill the boards desire to have a demand response program for all customers.	Having a demand response program available to all customers, regardless of technology, is an important step towards meeting the 2030 goals.	6/14/2021	8/31/2021	All
Load Flexibility	60	PowerMinder HPWH	Load shifting using controllable Heat Pump Water Heaters (HPWH). Scalability and load flexibility will be evaluated for both GE and Rheem brand controllable HPWHs.	Up to 0.5 kW of flexible load per HPWH, at scale this technology has the potential to significantly contribute flexible load called for by the ZCP. This project is an important step to help realize the value of flexible load from water heaters.	10/7/2018	7/31/2021	All

Table 3: Enterprise-Wide Initiatives

Initiative Name	Initiative Description	Initiative Benefits	Start Date	End Date	Ward
California Mobility Center	The CMC revamped its brand, developed launch campaign, finalized service offering and secured service providers, negotiated lease, designed ramp-up factory and procured equipment, executed founders' agreements, assisted with the creation of an affiliated venture capital fund and more.	Accelerate commercialization of electric transportation solutions will enable SMUD to realize the GHG benefits of transportation electrification and minimize costs for grid expansion via new smart innovative technologies.	06/2019	Ongoing	All
DERMS	Strategic business partnership with OSI to develop a Distributed Energy Resource Management System whereas SCADA and behind the meter resources can be used to solve distribution constraints, participate in the market, and manage flexibles loads.	Leverage DER capabilities to meet economic objectives, peak load reduction, local constraint issues, deferred infrastructure investment, and grid optimization. As OSI's partner, SMUD shares revenue from future sales.	2018	2028	All
ADMS	Implement a real-time Advanced Distribution Management System (ADMS) Platform (DMS and D-SCADA) to improve management and control of distribution system, enhance distribution operations functions, optimize distribution system and improve forecasting accuracy.	ADMS is the foundation to support providing SMUD's Distribution System Operations a 360 view of distribution and is required to support future DERMS Phases.	02/2018	2021	All
Innovation team	Innovation at SMUD comprises of exploratory activities related to new strategies. The Innovation Governance Team reviewed 63 technology and business model submissions by employees and external stakeholders for inclusion into the 2030 Zero Carbon Plan, and will continue reviewing opportunities as they are presented.	The Innovation team will propel us towards our 2030 absolute zero carbon goal by balancing diverse emerging technologies and ideas across the organization that drive operational efficiencies and competitive advantage with a centralized team that can champion breakthrough innovations.	2021	Ongoing	All
Internet of Things Platform (Phase 1)	Phase 1 proof-of-concept of remote management of grid assets showed how a centralized platform can support device connectivity, data collection, analytics and visualization. Phase 2 will expand to customer DERs.	The IoT platform will improve the planning and operations of SMUD assets, while expansion to customer DERs will support load flexibility and decarbonization.	09/2020	07/2021	All
Virtual Assessments	SAAs, Energy Specialists and Energy Advisors conducted onsite energy audits virtually giving customers a safe and convenient way to engage and thrive with SMUD during and after COVID-19.	Greater safety and flexibility provided to SMUD customers in attaining energy audits for their properties. Operational efficiency and cost reduction for fewer truck/car rolls.	2020	Ongoing	All

RESOLUTION NO. _____

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

This Board accepts the monitoring report for **Strategic Direction SD-10, Innovation**, substantially in the form set forth in **Attachment ____** hereto and made a part hereof.

SSS No.

CFO 21-009

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date

ERCS – 09/15/21

Board Meeting Date

September 16, 2021

TO				TO							
1.	Rob Lechner			6.							
2.	Jennifer Davidson			7.							
3.	Frankie McDermott			8.							
4.	Stephen Clemons			9.	Legal						
5.				10.	CEO & General Manager						
Consent Calendar		X	Yes	No If no, schedule a dry run presentation.		Budgeted		X	Yes	No (If no, explain in Cost/Budgeted section.)	
FROM (IPR) James Fraser				DEPARTMENT Heath, Safety & Security Operations				MAIL STOP E115		EXT. 5951	
DATE SENT 9/3/21											

NARRATIVE:

Requested Action: Discuss adoption of SMUD's Utility Security Plan.

Summary: In January 2019 the California Public Utilities Commission (CPUC) ordered all electric utilities, including Publicly Owned Electric Utilities (POUs), to conduct risk assessments of their distribution assets and create physical security mitigation plans for priority covered assets. POU's are required to provide the CPUC with notice that an independently reviewed mitigation plan for all covered assets has been adopted by the POU's governing board. The Notice was originally due July 10, 2021, and SMUD notified the CPUC pursuant to the terms of the CPUC order that SMUD would submit its Notice of adoption by October 2021.

Staff completed a risk assessment of all distribution substations not covered by the North American Electric Reliability Corporation (NERC) CIP -014 and evaluated the potential risks associated with a successful physical attack on identified covered facilities. All covered facilities have been assessed to either have an alternate source to another distribution substation or the critical customer served by the facility has back-up generation. Staff concluded there are no distribution facilities within SMUD that require additional specific physical security mitigation planning pursuant to the CPUC's order. The Plan reflects staff's assessment, evaluation, and conclusions.

SMUD obtained an independent third-party review of the Plan. SMUD also designated the California Governor's Office of Emergency Services (CalOES) as a validation authority and obtained CalOES' review of the Plan.

Board Policy: SD-6, Safety Leadership
(Number & Title) SD-17, Enterprise Risk Management

Benefits: The presentation will inform the Board of SMUD's Utility Security Plan.

Cost/Budgeted: N/A

Alternatives: SMUD is required to provide the CPUC with notice that an independently reviewed mitigation plan for all covered assets has been adopted.

Affected Parties: SMUD

Coordination: Executive Office, Board Office, Legal, Security Operations

Presenter: Rob Lechner, Director, Facilities and Security Operations

Additional Links:

SUBJECT

SMUD's Utility Security Plan

ITEM NO. (FOR LEGAL USE ONLY)

9

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

 SMUD Sacramento Municipal Utility District	SECTION PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE R.15-06-009	SUBJECT PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES
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Sacramento Municipal Utility District Utility Security Plan Revision 1.0

Revision Date: 28 July 2021

Authored by:

James Fraser

Physical Security Program Manager

Approved by:

Rob Lechner

Director, Facilities and Security Operations

	<p>SECTION</p> <p>PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE R.15-06-009</p>	<p>SUBJECT</p> <p>PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES</p>
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1.0– PURPOSE

This document establishes SMUD’s fulfillment of the requirements set forth by the California Public Utilities Commission (CPUC) Decision (D.) 19-01-018 adopted in Rulemaking (R.) 15-06-009 – Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Regulation of Physical Security for the Electric Supply Facilities of Electrical Corporations.

2.0- SCOPE

This document contains the summary findings from an assessment (Critical Infrastructure Assessment May 2021) conducted on SMUD Distribution Assets throughout the SMUD service territory applicable to the screening factors set forth in the Joint IOU/POU Straw Proposal to determine if a facility is a “Covered Distribution Facility” and summarized in section 5. It represents SMUD’s compliance with the CPUC’s Safety and Enforcement Division’s Six-step Security Plan Process described in D. 19-01-018.

3.0– RESPONSIBILITIES

3.1 Director, Facilities and Security Operations

Primary owner and responsible for the coordination, development, and implementation of the Security Plan.

3.2 Distribution Planning Manager

Responsible for determining the status of SMUD distribution facilities and their applicability to CPUC D.19-01-018.

3.3 Sacramento Power Academy Manager

Responsible for the Workforce Training and Retention Program portion of the Security Plan that articulates SMUD’s ability to comply with the CPUC D.19-01-018.

3.4 Transmission and Distribution Maintenance Planning Manager

Responsible for the Asset Management Program for SMUD.

3.5 Physical Security Program Manager

Responsible for the content of the Security Plan and its adherence to CPUC D.19-01-018.

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4.0 BACKGROUND

On April 16, 2013, one or more individuals attacked equipment located within Pacific Gas and Electric Company's (PG&E) Metcalf Transmission Substation, ultimately damaging 17 transformers. These individuals also cut nearby fiber-optic telecommunication cables owned by AT&T. In response to the attack, the Federal Energy Regulatory Commission (FERC) directed the North American Electric Reliability Corporation (NERC) to develop new physical security requirements, resulting in the creation of CIP-014.

At the state level, Senator Jerry Hill authored SB 699 (2014), directing the CPUC to "consider adopting rules to address the physical security risks to the distribution systems of electrical corporations." In response to SB 699, the CPUC's Safety and Enforcement Division, Risk Assessment and Safety Advisory Section (RASA) prepared a white paper proposing a new requirement for investor-owned utilities (IOUs) and publicly owned utilities (POUs) to develop security plans that would identify security risks to their distribution and transmission systems and propose methods to mitigate those risks. The CPUC hosted a series of workshops to better understand the state of utility physical security protections and to seek input on refining their proposal.

In order to support a statewide improvement of how utilities address distribution level physical security risks, the California Municipal Utilities Association (CMUA), which is the statewide trade association for POUs, coordinated with the state's IOUs to develop a comprehensive Straw Proposal¹ (Joint IOU/POU Straw Proposal) for a process to identify at-risk facilities and, if necessary, develop physical security mitigation plans. As a member of CMUA, SMUD staff participated in the development of the Joint IOU/POU Straw Proposal through a CMUA working group as well as through direct meetings with the IOUs. The Joint POU/IOU Straw Proposal set out a process for the following: (1) identifying if the utility has any high priority distribution facilities; (2) evaluating the potential risks to those high priority distribution facilities; (3) for the distribution facilities where the identified risks are not effectively mitigated through existing resilience/security measures, developing a mitigation plan; (4) obtaining third party reviews of the mitigation plans; (5) adopting a document retention policy; (6) ensuring a review process established by the POU governing board; and (7) implementing information sharing protocols.

¹ Straw Proposal available at:
https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/Safety/Risk_Assessment/physicalsecurity/R1506009-Updated%20Joint%20Straw%20Proposal%20and%20Cover%20083117%20Filing.pdf.

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RASA filed a response² to the Joint IOU/POU Straw Proposal that recommended various modifications and clarifications, including a six-step process. Additionally, RASA recommended that the utility mitigation plans include: (1) an assessment of supply chain vulnerabilities; (2) training programs for law enforcement and utility staff to improve communication during physical security events; and (3) an assessment of any nearby communication utility infrastructure that supports priority distribution substations.

In early 2019, the CPUC approved Decision (D.) 19-01-018, which adopted the Joint IOU/POU Straw Proposal as modified by the RASA proposal, with additional clarifications and guidance. D.19-01-018 clarified that where there is a conflict between the Straw Proposal and the RASA proposal, then it is the rule in the RASA proposal that controls.³

D.19-01-018 asserted that the POUs should utilize the Utility Security Plan process described therein. SMUD is following the process and issuing this report at this time to reflect its existing commitment to safety and to protecting its ratepayers' investment by taking reasonable and cost-effective measures in an effort to safeguard key assets of its distribution system.

Physical Security Principles

The Joint IOU/POU Straw Proposal seeks to support the creation of a risk management approach toward distribution system physical security, with appropriate considerations of resiliency, impact, and cost. To accomplish this risk-based approach, the Joint IOU/POU Straw Proposal identifies several principles to guide the development of each individual utility's program. These principles are the following:

1. Distribution systems are not subject to the same physical security risks and associated consequences, including threats of physical attack by terrorists, as the transmission system.
2. Distribution utilities will not be able to eliminate the risk of a physical attack occurring, but certain actions can be taken to reduce the risk or consequences, or both, of a significant attack.
3. A one-size-fits-all standard or rule will not work. Distribution utilities should have the flexibility to address physical security risks in a manner that works best

² RASA Response available at:

https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/Safety/Risk_Assessment/physicalsecurity/Final%20Staff%20Recommendation%20for%20Commission%20Consideration%20010318.pdf.

³ D.19-01-018 at 43, footnote 58 ("Should there be any question of which shall predominate should there be any incongruity or conflict between a utility or SED RASA recommended rule, the SED RASA rule shall apply.").

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for their systems and unique situations, consistent with a risk management approach.

4. Protecting the distribution system should consider both physical security protection and operational resiliency or redundancy.
5. The focus should not be on all Distribution Facilities, but only those that risk dictates would require additional measures.
6. Planning and coordination with the appropriate federal and state regulatory and law enforcement authorities will help prepare for attacks on the electrical distribution system and thereby help reduce or mitigate the potential consequences of such attacks.

5.0 IDENTIFICATION OF COVERED FACILITIES

Ensuring the safety of its facilities is a top priority for SMUD, and SMUD prioritizes safety in all aspects of its design, operation, and maintenance practices.

SMUD recognizes the importance of securing the safety and reliability of its electric system and, therefore, SMUD voluntarily participated in the California Public Utilities Commission's (CPUC) Physical Security proceeding and has undertaken this assessment and documentation consistent with CPUC Decision (D.) 19-01-018.

Distribution System Description:

SMUD's main distribution system starts with our 69kV system that serves as the high voltage source to our 69kV/12kV substations. Typical transformer sizes at these substations are 20MVA units. In some of our rural areas these units will be smaller, and a common size transformer will be 6.25MVA or 12MVA. There is a small pocket of 69kV/4kV substations which is currently under a multi-year voltage conversion effort to convert this area to the 12kV distribution system. In our downtown area the distribution system is 21kV and is derived from several 115kV/21kV substations. Also serving downtown is our Secondary Network system which is served from 12kV system and derived from two 115kV/12kV substations. Our larger load customers are served by dedicated substations (69kV/12kV, 69kV/4kV) with some taking 69kV service through substations they own and maintain.

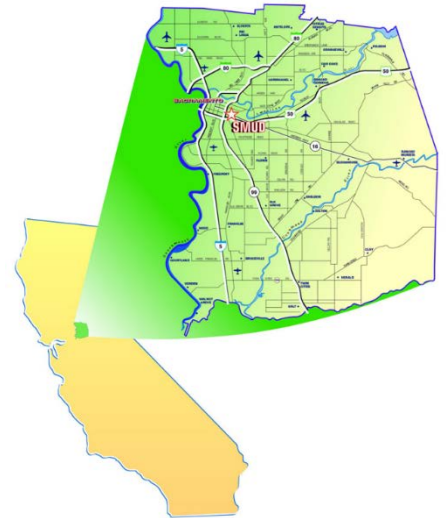
The distribution system is planned to be able to serve load under normal configuration and under what we call N-1 situation. N-1 is looking at the failure loss of a single major distribution component. This is typically the loss of a distribution substation transformer. In order to ensure N-1 solutions, there will be several circuit ties to adjacent substations

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that our Operations personnel can rely on to field switch the load during such an emergency event and restore power to customers initially impacted by the N-1 event.

SMUD's Distribution Summary:

- Service territory covers over 900 square miles
- Serves over 630,000 customers
- 10,500 circuit miles of distribution lines
- 212 distribution substations, including dedicated Customer substations



Identification Assessment:

SMUD has identified the distribution facilities in its service territory that are subject to its control that meet the definition of a “Covered Distribution Facility” set forth in D.19-01-018. In performing this identification analysis, SMUD used the seven factors identified in the Joint IOU/POU Straw Proposal and assessed all distribution level facilities that are subject to its exclusive control, or if the facility is jointly owned, the joint ownership agreement identifies SMUD as the entity responsible for operation and maintenance. The specific types of facilities include distribution substations, line transformers and basic ancillary equipment that are required to provide electrical service such as poles and wires.

The seven screening factors set forth in the Joint IOU/POU Straw Proposal to determine if a facility is a “Covered Distribution Facility” are set forth below. Some factors require additional definitions and/or clarifications in order to be applied to SMUD’s facilities. The following Table reflects the Joint IOU/POU Straw Proposal’s Factors as clarified by SMUD.

Factor	Joint IOU/POU Straw Proposal Description	Additional Clarification
1	Distribution Facility necessary for crank path, black start or capability essential to the restoration of regional electricity service that are not subject to the California Independent System Operator’s (CAISO) operational control and/or subject to North American Electric Reliability Corporation (NERC) Reliability Standard CIP-014-2 or its successors	No additional clarification.

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2	Distribution Facility that is the primary source of electrical service to a military installation essential to national security and/or emergency response services (may include certain airfields, command centers, weapons stations, emergency supply depots)	No additional clarification.
3	Distribution Facility that serves installations necessary for the provision of regional drinking water supplies and wastewater services (may include certain aqueducts, well fields, groundwater pumps, and treatment plants)	An installation provides “regional drinking water supplies and wastewater services” if it is the primary source of drinking water supply or wastewater services for over 40,000 customer accounts for an area with a population of over 100,000.
4	Distribution Facility that serves a regional public safety establishment (may include County Emergency Operations Centers; county sheriff’s department and major city police department headquarters; major state and county fire service headquarters; county jails and state and federal prisons; and 911 dispatch centers)	[POU] defines “regional public safety establishment” as any of the following: (1) Headquarters of a major police or fire department serving 1.5 million population with at least 1,000 sworn officers; (2) County Sheriff’s Department Headquarters; (3) County Emergency Operations Center; (4) County/State Fire headquarters; (5) a California State Prison; (5) a United States Penitentiary; or (6) a Federal Correctional Institute.
5	Distribution Facility that serves a major transportation facility (may include International Airport, Mega Seaport, other air traffic control center, and international border crossing)	In addition to the facilities listed in the Joint IOU/POU Straw Proposal, [POU] defines a “major transportation facility” as any transportation facility that has (1) an average of 600 or more flights per day; or (2) over 50,000 passengers arriving or departing per day.
6	Distribution Facility that serves as a Level 1 Trauma Center as designated by the Office of Statewide Health Planning and Development	No additional clarification.
7	Distribution Facility that serves over 60,000 meters	No additional clarification.

Based on this scope, SMUD identified 314 facilities for further analysis. Of these, 18 locations fall within one of the Covered Distribution Facility categories listed above. SMUD evaluated the potential risks associated with a successful physical attack on these Covered Distribution Facilities at these 18 locations and whether existing grid resiliency requirements for customer-owned back-up generation and/or other physical security measures appropriate mitigated the identified risks. All 18 locations have been

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assessed to either have an alternate source to another distribution substation or the critical customer has back-up generation, the conclusion is there are no distribution facilities within SMUD that require a specific physical security mitigation plan pursuant to D.19-01-018.

The following tables summarizes the results of SMUD's analysis.

Table 1 - Distribution Facility necessary for crank path, black start or capability essential to the restoration of regional electricity service that are not subject to the California Independent System Operator's (CAISO) operational control and/or subject to North American Electric Reliability Corporation (NERC) Reliability Standard CIP-014-2 or its successors

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
None	N/A	N/A	N/A	N/A

Table 2 - Military installation essential to national security and/or emergency response services (may include certain airfields, command centers, weapons stations, emergency supply depots)

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
None	N/A	N/A	N/A	N/A

	<p style="text-align: center;">SECTION</p> <p style="text-align: center;">PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE R.15-06-009</p>	<p style="text-align: center;">SUBJECT</p> <p style="text-align: center;">PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES</p>
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Table 3 - Installations necessary for the provision of regional drinking water supplies and wastewater services for over 40,000 customer accounts for an area with a population of over 100,000

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
Confidential data maintained by SMUD Security Operations.				

Table 4 - Distribution Facility that serves a regional public safety establishment (may include County Emergency Operations Centers; county sheriff's department and major city police department headquarters; major state and county fire service headquarters; county jails and state and federal prisons; and 911 dispatch centers)

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
Confidential data maintained by SMUD Security Operations.				

Table 5 - Distribution Facility that serves a major transportation facility (may include International Airport, Mega Seaport, other air traffic control center, and international border crossing

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?

	<p style="text-align: center;">SECTION</p> <p style="text-align: center;">PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE R.15-06-009</p>	<p style="text-align: center;">SUBJECT</p> <p style="text-align: center;">PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES</p>
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Confidential data maintained by Confidential data maintained by SMUD Security Operations.				
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Table 6 - Distribution Facility that serves as a Level 1 Trauma Center as designated by the Office of Statewide Health Planning and Development

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
Confidential data maintained by SMUD Security Operations.				

Table 7 - Distribution Facility that serves over 60,000 meters

Facility Name	Location – Main Street	Primary Distribution Substation Source	Alternate Distribution Substation Source	If no Alternate Distribution source capable to pick up Critical Facility, do they have back-up generator?
None	N/A	N/A	N/A	N/A

6.0 RISK ASSESSMENT

For purpose of this analysis, a physical attack is limited to the following: (1) theft; (2) vandalism; and (3) discharge of a firearm. A “successful physical attack” is limited to circumstances where a theft, vandalism, and/or the discharge of a firearm has directly led to the failure of any elements of the Covered Distribution Facility that are necessary to provide uninterrupted service to the load served by the Covered Distribution Facilities identified above. In order to perform this risk analysis, SMUD evaluated the relative risk that (1) a physical attack on a Covered Distribution Facility will be successful

	<p style="text-align: center;">SECTION</p> <p style="text-align: center;">PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE</p> <p style="text-align: center;">R.15-06-009</p>	<p style="text-align: center;">SUBJECT</p> <p style="text-align: center;">PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES</p>
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considering the protective measures in place; or (2) that the impacts of a successful attack will be mitigated due to resiliency and other measures in place.

Based on the foregoing, the process described in the Joint IOU/POU Straw Proposal, and the direction provided in D.19-01-018, in addition to an internal evaluation, SMUD has determined that existing programs and measures effectively mitigate the effects of a successful physical attack for each of the Covered Distribution Facilities. Thus, there are no Covered Distribution Facilities that require additional risk assessment or distinct Mitigation Plan under the process set forth in D.19-01-018.

7.0 NARRATIVE DESCRIPTIONS FOR SMUD SECURITY PLAN

A. Asset Management Program

SMUD has developed an Asset Health Index (AHI) program to maintain reliability of power transformers and circuit breakers. The program leverages information pertaining to location, manufacturer, model, type, year of manufacture and the condition of the asset to identify and develop an asset strategy for the system. The strategy drives the plan and quantity for spare equipment; as well as identifying equipment requiring focused attention for maintenance or replacement.

SMUD maintains spare quantities for Distribution Substation Transformers to anticipate upcoming replacements and considers historical lead time for manufacturers to deliver the transformers. SMUD also monitors the health of distribution substation transformers and manufacturer lead times annually to adjust the spare quantities as needed.

B. Workforce Training and Retention Program -

SMUD has a robust skilled trades apprenticeship program. There are currently 12 apprenticeship programs including Lineworker, Electrician, Cable Splicer, Meter Technician, Telecom Technician, and several more. Most of SMUD's apprenticeships are California State Department of Apprenticeship Standards and US Department of Labor certified. These 3-to-4-year apprenticeship programs provide employees with the skills, training, mentorship, and support needed to become skilled trades professionals, ultimately leading to extensive careers at SMUD and in the utility industry. Apprentice positions are filled on an as needed basis; typically, there are a host of apprentices in the training pipeline developing their skills and preparing for journey level positions. At SMUD there are currently 51 apprentices, all of which are at various points in their apprenticeship. Apprenticeship training includes: Night School, On-the-Job Training, advancement or step-tests, and annual safety/regulatory training. Formal training

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programs coupled with competitive salaries ensure retention of SMUD's highly qualified skilled trades professionals. Each skilled trade department within SMUD includes a full scheduling staff that supports the planning of our skilled trades crews' time and efforts. These scheduling personnel, coupled with SMUD's warehouse staff, ensure that skilled trades professionals are sufficiently staffed to meet long, and short-term work needs throughout SMUD's service territory. SMUD utilizes, under agreement with our labor union partners, overtime and on-call scheduling to ensure all needs are met.

SMUD is a member of the California Utilities Emergency Association (CEUA). Through the CEUA SMUD participates in joint critical infrastructure planning mitigation, training, exercises, and education. A key component of the CEUA is a Mutual Assistance Agreement among members of the CEUA. The CEUA Mutual Assistance Agreement provides opportunities and a vehicle for member utilities to provide emergency repair and restoration to critical infrastructure services, systems and facilities. SMUD has both offered and received support from our utility colleagues and is prepared to do so again in the future as needed.

C. Preventative Maintenance Plan

SMUD currently does not employ security systems for the distribution assets. Additionally, due to the conclusions reached during SMUD's identification and assessment of its facilities as described in this Plan, SMUD does not currently anticipate systems will be employed in the future that will require a preventative maintenance plan.

D. Independent Review

SMUD has submitted this documentation of its identification process, risk assessment and conclusions to a qualified third party for independent review. SMUD selected as its third-party reviewer, HDR Inc. of Folsom, CA ("Reviewer"). Reviewer is not part of or otherwise affiliated with SMUD and has the appropriate expertise as follows: evaluators hold accreditations from nationally-recognized security professional organizations.

The qualified third-party reviewer issued an evaluation that the plan in its current state is compliant with the intent of the CPUC directive. This utility security plan documentation addresses any identified deficiencies or recommendations or documents the reasons why any recommendations were not adopted. The combination of this document, the non-confidential conclusions of the qualified third-party reviewer, and SMUD's responses to the qualified third-party review will constitute SMUD's Utility Security Plan.

	<p style="text-align: center;">SECTION</p> <p style="text-align: center;">PHYSICAL SECURITY OF ELECTRIC INFRASTRUCTURE</p> <p style="text-align: center;">R.15-06-009</p>	<p style="text-align: center;">SUBJECT</p> <p style="text-align: center;">PHYSICAL SECURITY PLAN IN SUPPORT OF PROTECTING COVERED DISTRIBUTION FACILITIES</p>
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E. Validation

SMUD submitted its Utility Security Plan to a qualified authority for review. The California Office of Emergency Services, Homeland Security Division, provided additional feedback and evaluation of SMUD's Utility Security Plan and, to the extent that this entity is authorized, such entity deems the Utility Security Plan as adequate.

F. Adoption

SMUD's Board of Directors adopted the Utility Security Plan at its duly noticed public meeting on September 15th, 2021, by Resolution 21-__-__.

SMUD will review and update its Utility Security Plan as appropriate and as necessary to preserve plan integrity, no less often than once every five years.

RESOLUTION NO. _____

WHEREAS, in January 2019, the **California Public Utilities Commission (CPUC)** issued Decision D.19-01-018 ordering all electric utilities, including publicly owned electric utilities (POUs) to conduct risk assessments of their distribution assets and create a **Utility Security Plan (Plan)** for priority covered assets; and

WHEREAS, D.19-01-018 directs POUs to provide the **CPUC** with notice that an independently reviewed **Plan** for all covered assets has been adopted by the POU's governing board; and

WHEREAS, the notice was originally due July 10, 2021, and SMUD notified the **CPUC** pursuant to the terms of D.19-01-018 that SMUD would submit its notice of adoption by October 2021; and

WHEREAS, staff completed a risk assessment of all distribution substations not covered by the North American Electric Reliability Corporation (NERC) CIP-014 and evaluated the potential risks associated with a successful physical attack on identified covered facilities; and

WHEREAS, staff identified 17 potential covered facilities based on screening factors set forth in D.19-01-018, including critical customer load of law enforcement and fire dispatch centers, airports, military facilities, water and wastewater treatment facilities, and trauma center hospitals; and

WHEREAS, all covered facilities have been assessed to either have an alternate source to another distribution substation or the critical customer served by the facility has backup generation; and

WHEREAS, staff has concluded there are no distribution facilities within SMUD that require additional specific physical security mitigation planning pursuant to D.19-01-018; and

WHEREAS, the **Plan** reflects staff's assessment, evaluation, and conclusions; and

WHEREAS, SMUD obtained an independent third-party review of the **Plan** and the review concluded that SMUD's **Plan** is compliant with D.19-01-018 with no recommendations for changes to the **Plan**; and

WHEREAS, SMUD designated the **California Governor's Office of Emergency Services (CalOES)** as a qualified validation authority and obtained **CalOES's** review of the **Plan**; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. This Board adopts the SMUD **Utility Security Plan (Plan)** substantially in the form set forth in **Attachment ____** hereto and made a part hereof.

Section 2. The Chief Executive Officer and General Manager, or his designee, is authorized to make future changes to the SMUD **Plan** that, in his prudent judgment: (a) further the primary purpose of the SMUD **Plan**; and (b) are intended to provide a net benefit to SMUD.

SSS No.
CFO 21-010

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date
N/A
Board Meeting Date
September 16, 2021

TO				TO			
1.	Jennifer Restivo			6.			
2.	Scott Martin			7.			
3.	Jennifer Davidson			8.			
4.				9.	Legal		
5.				10.	CEO & General Manager		
Consent Calendar			Yes	X	No		If no, schedule a dry run presentation.
Budgeted			X	Yes		No (If no, explain in Cost/Budgeted section.)	
FROM (IPR)				DEPARTMENT			
Alcides Hernandez				Revenue Strategy			
MAIL STOP		EXT.		DATE SENT			
B356		6397		9/8/21			

NARRATIVE:

Requested Action: Discussion and possible approval of draft rate resolutions introduced at the August 31, 2021, Board of Directors meeting to make changes to SMUD's Rates, Rules and Regulations proposed by:

- a. Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services (Volumes 1 & 2) dated June 17, 2021 ("CEO & GM Report") [two resolutions]; and
- b. Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff (Volume 1) dated June 17, 2021 ("OATT Report") [one resolution].

Summary: Under the Municipal Utility District (MUD) Act and SMUD Ordinance No. 15-1, the Board of Directors is required to conduct a Public Hearing on the CEO & GM Report and the OATT Report to receive and consider public comment. In addition, SMUD will introduce three draft resolutions after consideration at the Public Hearing of the CEO & GM Report and the OATT Report, public comment, alternative proposals, input from community outreach meetings, and public rate workshops.

Resolution No. 21-06-06, dated June 17, 2021, scheduled a Public Hearing date of August 31, 2021, to consider the CEO & GM Report and the OATT Report, which set forth in detail the proposed rate action.

SMUD held two qualifying public workshops and conducted over 50 presentations to community, neighborhood and business organizations. Staff presented rate proposal information, provided collateral material and answered questions. Public notices were published on June 22, June 25, and June 30, and a press release were issued. An additional 55 local agency elected officials were sent information packets and offers for follow-up meetings if desired.

On August 31, 2021, the date of the Public Rate Hearing, all interested persons were provided an opportunity to comment and submit testimony, following which draft resolutions were introduced by the Board of Directors for at least 10 calendar days' circulation for public review, input, and comment. SMUD Ordinance No. 15-1 requires that the Board of Directors make a draft rate resolution available for public comment for at least 10 calendar days.

No material modification (i.e., modifications which make changes to customer rates or billings) to the draft resolutions have been made, and, accordingly, the Board intends to adopt the rate resolutions on September 16, 2021.

Board Policy: Meets provisions of the Board's competitive rates directive (SD-2 Competitive Rates), supports the 2030 Zero Carbon Plan (SD-9 Resource Planning) and maintains low-cost access to credit markets (SD-3 Access to Credit Markets).

Benefits: Support of 2021 rate process and the above referenced strategic directives.

Cost/Budgeted: N/A

Alternatives: No action would impact ability to meet strategic directives.

Affected Parties: SMUD and SMUD Customers

Coordination: Revenue Strategy and Planning & Performance

Presenter: Alcides Hernandez, Manager, Revenue Strategy

Additional Links:

SUBJECT

2021 Rate Process

ITEM NO. (FOR LEGAL USE ONLY)

10

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300

community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in one meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on www.smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus, and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial targets in years 2022 and 2023, consisting of:

- Wildfire prevention and mitigation, due to increased costs and requirements for vegetation management and insurance for wildfire; and
- Infrastructure improvements to maintain high reliability, including continued investments in our distribution and transmission systems, as well as meeting regulatory requirements; and
- Clean energy compliance requirements – investing in clean energy resources like more wind, solar, hydro power and biogas to meet updated state requirements; and
- Increased operating costs, including materials and labor, due to the COVID-19 pandemic and the impacts it has had to global supply chains; and

WHEREAS, SMUD has adopted a robust risk-based prioritization process to develop operational efficiencies and other cost saving measures to offset higher costs and ensure that rate increases are less than the forecasted rate of inflation; and

WHEREAS, it is necessary for SMUD to increase retail rates by one and a half percent (1.5%) for all customers effective March 1, 2022, and two percent (2.0%) for all customers effective January 1, 2023, in order to continue to meet the objectives and metrics set forth in this Board's Strategic Directions; and

WHEREAS, the recommendations in the CEO & GM Report include minor language amendments in Rate Schedules R and R-TOD to improve clarity of which

months are included in each season, which rates customers may enroll in, and the closure of the Legacy and TOD (4-7 p.m.) rates; and

WHEREAS, SMUD proposes a new optional Residential CPP Rate for customers participating in a qualified program that will offer a per kWh discount on summer Off-Peak and Mid-Peak hours in exchange for a higher per kWh price during times when the grid is most stressed, up to 50 hours per summer; energy sent to the grid during CPP events will be compensated at the CPP event price; the CPP Rate will encourage customers to reduce their energy consumption during those times when the grid is most impacted, and send energy to the grid from solar or battery storage, thereby reducing stress on the grid, improving reliability, and promoting storage adoption; and

WHEREAS, on August 20, 2020, the Board approved postponing the implementation of the commercial rate restructure for one year, with the transition completing no later than May 31, 2022, as a result of the COVID-19 pandemic's impact on SMUD's operations and shifted priorities; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to reflect the delayed implementation of the commercial rate restructure to begin as early as October 1, 2021; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedules CB, CHP, EAPR, and EDR to reflect the delayed implementation of the commercial rate restructure timing; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to improve clarity and add storage systems in the list of devices that would allow customers to request an adjustment to their 12-month maximum demand; and

WHEREAS, the recommendations in the CEO & GM Report include updating the language in Rate Schedule CI-TOD1 to more accurately reflect the new rates nomenclature; and

WHEREAS, the recommendations in the CEO & GM Report include updating the applicability section of Rate Schedule CI-TOD2 to more clearly define which customers are subject to Rate Schedule CI-TOD2; and

WHEREAS, the recommendations in the CEO & GM Report include adding “Maximum Demand Charge” to the proration language of Rate Schedule AG to reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report include removing all language referencing rate category SL_DOM_M from Rate Schedule SLS; and

WHEREAS, the recommendations in the CEO & GM Report include adding language back into Rate Schedule SLS that was inadvertently removed in a prior rate action; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules AG, CI-TOD1, CI-TOD2, CI-TOD3, CI-TOD4, R and R-TOD to clarify which customers are exempt from the Generator Standby Service Charge; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule EAPR to reflect the end of the residential low-income discount transition and add the Maximum Demand Charge to the list of rate components that qualify for the Energy Assistance Program Rate discount; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule EDR by replacing the reference to the first meter read with a reference to the first billing period to align with the use of digital communicating meters; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule HGA by updating the generation amount from 35,000 MWh/inch to 30,000 MWh/inch to reflect new Federal Energy Regulatory Commission (FERC) licensing requirements and data collected since the implementation of Rate Schedule HGA; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule RBC by adding in the Summer Peak Demand Charge and updating the reference to Rate Schedule NEM with “Rate Schedules NEM1 and SSR” to reflect the updates approved by the Board in the 2019 rate action and the new Solar and Storage Rate; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rule and Regulation 13 – Temporary Service to more accurately reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, including:

- The Board establishes a rate target of 18 percent below Pacific Gas & Electric Company's published rates on a system average basis. In addition, the Board establishes a rate target of at least 10 percent below PG&E's published rates for each customer class;
- SMUD's rates shall be competitive with other local utilities on a system average basis;
- In addition, SMUD's rates shall be designed to balance and achieve the following goals:
 - Reflect the cost of energy when it is used or exported to the SMUD grid;
 - Reduce consumption during periods of high system demand;
 - Encourage energy efficiency, conservation and carbon reduction;
 - Encourage cost effective and environmentally beneficial Distributed Energy Resources (DERs) (examples of DERs include but are not limited to rooftop solar, battery storage and energy reduction applications);
 - Minimize the rate of change in the transition from one rate design to another;
 - Provide customers flexibility and choices;
 - Be as simple and easy to understand as possible;

- Address the needs of people with low incomes and severe medical conditions; and
- Equitably allocate costs across and within customer classes; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the recommendations to increase rates 1.5% on March 1, 2022, and 2.0% on January 1, 2023, for all customer classes are made on an across-the-board basis to reflect SMUD's cost increases of proportionate impact on all customer classes on average and therefore does not require an examination of the allocation of costs among customer classes or of class definitions; and

WHEREAS, the recommendations to implement the restructuring of the commercial rate restructure bring commercial Time-of-Day (TOD) rates and small commercial customer rates closer to the cost of service, including small commercial

Energy Assistance Program Rate (EAPR) customers that receive a discounted demand charge; and

WHEREAS, this Board has carefully considered the CEO & GM Report public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. RATE INCREASE FOR RESIDENTIAL RATES:

a. Effective March 1, 2022, adopt an increase in residential service rates by one and one half percent (1.5%). The increases will apply to all residential rates. The increases apply to the System Infrastructure Fixed Charge (SIFC), as well as the electricity usage charges and miscellaneous charges on customer bills.

b. Effective January 1, 2023, adopt an increase in residential service rates by two percent (2.0%). The increases will apply to all residential rates. The increases apply to the SIFC, as well as the electricity usage charges and miscellaneous charges on customer bills.

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 2. CHANGES TO RATE SCHEDULE R:

- a. Effective January 1, 2022, add the following language in Section I,

Subsection A of Rate Schedule R:

6. Customers who have a storage facility without an associated generating facility are not eligible to enroll in the Fixed Rate.

- b. Effective January 1, 2022, modify Section I, Subsection A,

Subsection 3 in Rate Schedule R as follows:

*3. Customers who qualify for Rate Schedule NEM1 and have an eligible renewable electrical generation facility that was approved for installation prior to January 1, 2018 are eligible to enroll in the Fixed Rate **and** ~~NEM1~~ customers that are enrolled in the Fixed Rate may remain on the Fixed Rate after December 31, 2022.*

- c. Effective January 1, 2022, modify Section I, Subsection B,

Subsections 3 and 4 in Rate Schedule R as follows:

*3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018, and are enrolled on the Legacy Rate may remain on this closed rate until **transitioned to SMUD's standard TOD (5-8 p.m.) Rate as early as January 1, 2023, as technically feasible** ~~December 31, 2022~~. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.*

*4. The Legacy Rate **will be eliminated once all** ~~terminate for~~ customers ~~with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, and~~ customers will then transition to SMUD's standard residential rate **are removed from this rate and the rate transition is complete.***

d. Effective January 1, 2022, modify Section II, Subsections A and C of Rate Schedule R by adding the months for each season in the rates table and removing the following language:

~~**Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.*~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. CHANGES TO RATE SCHEDULE R-TOD:

a. Effective January 1, 2022, add Subsection 3 to Section I in Rate Schedule R-TOD as follows:

3. Customers who have an eligible renewable electrical generation facility under Rate Schedules NEM1 or SSR that was approved for installation by SMUD on or after January 1, 2018, or who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2018 must be on this Rate Schedule R-TOD.

b. Effective January 1, 2022, modify the language in Section I, Subsection A in Rate Schedule R-TOD as follows:

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD's residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.

~~*2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD after December 31, 2017, must be on the TOD (5-8 p.m.) Rate.*~~

32. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.

~~3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM2 must be on the TOD (5-8 p.m.) Rate.~~

~~43. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.~~

c. Effective January 1, 2022, modify Section I, Subsection B,

Subsection 3 in Rate Schedule R-TOD as follows:

~~3. The TOD (4-7 p.m.) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, as early as January 1, 2023 as technically feasible. Customers will then transition to SMUD's standard residential TOD (5-8 p.m.) Rate, as determined by SMUD.~~

d. Effective January 1, 2022, modify Section II, Subsection A of Rate

Schedule R-TOD by adding the months for each season in the rates table and removing the following language:

~~*Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. CRITICAL PEAK PRICING RATE:

a. Effective January 1, 2022, add Subsection C to Section I in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing (CPP) Rate (rate categories RTC1 and RTC2)

1. The CPP rate is available as of June 1, 2022 for customers who are participating in a qualifying program. Customers that have accepted a storage incentive under the Solar and Storage Rate incentive program are

required to enroll in this rate for a duration as determined by SMUD program rules posted on www.smud.org.

2. A maximum of 30,000 customers may be enrolled in this rate at any given time.

3. CPP Events may range from one to four hours, but not more than once per day. CPP Events may be called during any hour of the day during summer months, including holidays and weekends, up to 50 hours per summer. CPP Events may span multiple time-of-day periods.

4. CPP Events will be announced by SMUD a day in advance. However, in the event of a system emergency, announcements may occur the same day as the event.

5. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

b. Effective January 1, 2022, add Subsection C to Section II in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing Rate

1. The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).

2. The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.

3. During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.

4. During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.

5. The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org

c. Effective January 1, 2022, customers electing to enroll in the Critical Peak Pricing Rate may also receive the Electric Vehicle discount.

d. The Critical Peak Pricing Rate will follow new rates nomenclature as determined by SMUD.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. RATE INCREASE FOR AGRICULTURAL AND COMMERCIAL RATES:

a. Effective March 1, 2022, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Services, and Combined Heat & Power Distributed Generation rates (Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, formerly known as Rate Schedules GS, GS-TOU1, GS-TOU2, GS-TOU3, and Rate Schedules AG, CHP, DWS, and GS-TDP) shall be increased by one and one half percent (1.5%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Super Peak Demand Charges;
- Summer Peak Demand Charges;

- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

b. Effective January 1, 2023, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Service, and Combined Heat & Power Distributed Generation rates, (Rate Schedules AG, CHP, CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, DWS and GS-TDP) shall be increased by two percent (2.0%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Peak Demand Charges;
- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 6. IMPLEMENTATION OF COMMERCIAL RATE

RESTRUCTURE:

a. Effective September 17, 2021, move the transition language from Section I, Subsections A and B, to a new Section II. Transition to Restructured Commercial & Industrial Time-of-Day Rates in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

b. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD1 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GSN_T and GSS_T) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-0 and CITS-1) beginning the first full billing cycle in October 2021.*
- 3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).*

c. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD2 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GUS_S and GUP_S) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured*

Commercial & Industrial Time-of-Day rates (CITS-2 and CIP-2) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

d. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD3 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_M, GUP_M and GUT_M) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-3, CIP-3, and CIT-3) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

e. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD4 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_L, GUP_L and GUT_L) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-4, CIP-4, and CIT-4) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

f. Effective September 17, 2021, modify Section III, Subsection A in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 by adding the closing date, October 1, 2021, to the title of Subsection A and the following sentence after the Legacy rate prices:

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

g. Effective September 17, 2021, update the language after the price table in Section III, Subsection C in Rate Schedule CI-TOD1 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

h. Effective September 17, 2021, update the language after the price table in Section III, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

i. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section V, Subsection D of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges, Site Infrastructure Charges, **Summer Super Peak Demand Charge**, Summer Peak Demand Charges, as well as electricity usage charges for SMUD-provided power.*

j. Effective September 17, 2021, add the Maximum Demand Charge to Section V, Subsection D of Rate Schedule CI-TOD1 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, **Maximum Demand Charge**, Summer Peak Demand Charges (~~if applicable~~) and electricity usage charges for SMUD-provided power.*

k. Effective September 17, 2021, update the date the Legacy commercial rates will close, October 1, 2021, in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

l. Effective September 17, 2021, modify the title of Section VII, Subsection A of Rate Schedule CI-TOD1 as follows:

*B. Legacy ~~GSN_T, GSS_T and GFN~~**Time-of-Use Billing Periods**
(closed as of October 1, 2021)*

m. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section VIII, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 7. MISCELLANEOUS COMMERCIAL UPDATES:

a. Effective September 17, 2021, modify Section V, Subsection C in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4 as follows:

*C. Implementation of Energy Efficiency or Installation of New Solar/Photovoltaic **or Storage Systems***

*Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic **or storage** system to offset their on-site energy usage may request, in writing, within 30 days of*

*the project completion and commissioning, an adjustment to their ~~billing demand~~ **twelve month maximum demand** based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted ~~billing demand~~ **twelve month maximum demand** is valid for 12 months or until it is exceeded by actual maximum demand.*

b. Effective September 17, 2021, move Section V, Subsection D to a new Section VII. Commercial & Industrial Time-of-Day Billing Periods, with the remaining section numbers updated accordingly in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

c. Effective September 17, 2021, add the holidays in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

d. Effective September 17, 2021, modify the title of Section VII, Subsection B of Rate Schedule CI-TOD1 as follows:

B. Restructured ~~CITS-0 and CITS-1~~ Time-of-Day Billing Periods

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 8. MODIFICATIONS TO RATE SCHEDULE CI-TOD1:

a. Effective September 17, 2021, update Section I, Subsection A of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of 20 kW or less. Whenever the monthly maximum demand exceeds 20 kW for any three consecutive months and the monthly energy usage is at least 7,300 kWh for any three consecutive months within a 12-month period, the account will be billed on the applicable ~~demand~~ rate. To return to the ~~nondemand~~ **CITS-0** rate, the monthly maximum demand must be 20 kW or less for 12-consecutive months or the usage must be less than 7,300 kWh for 12 consecutive months.*

b. Effective September 17, 2021, update Section I, Subsection C of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of at least 21 kW but does not exceed 299 kW for any three consecutive months and monthly energy usage of at least 7,300 kWh for any three consecutive months within a 12-month period. The customer will be billed on this ~~demand~~ rate unless the monthly usage is less than 7,300 **kWh** for 12 consecutive months; or the maximum demand falls below 21 kW for 12 consecutive months; or the monthly maximum demand exceeds 299 kW for three consecutive months.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 9. MODIFICATIONS TO RATE SCHEDULE CI-TOD2:

a. Effective September 17, 2021, modify Section I of Rate Schedule CI-TOD2 as follows:

*This Rate Schedule CI-TOD2 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand of at least 300 kW for three consecutive months, but not greater than 499 kW for three consecutive months during the preceding 12 months, ~~and for all accounts previously served at the primary level on Rate Schedule GS.~~ Accounts **served at the secondary service voltage level** will remain on the CI-TOD2 rate schedule unless monthly maximum demand falls below 300 kW for 12 consecutive months or exceeds 499 kW for three consecutive months. **Accounts served at the primary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand exceeds 499 kW for three consecutive months.** This schedule is also mandatory for accounts with contract capacity of at least 300 kW, but not greater than 499 kW. The demand for any month shall be the maximum 15-minute kW delivery during the month.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 10. MODIFICATIONS TO RATE SCHEDULE AG:

Effective January 1, 2022, add “Maximum Demand Charge” to the proration language in Section VI, Subsection B of Rate Schedule AG.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 11. CHANGES TO STREET, TRAFFIC, AND LIGHTING

SERVICES:

a. Effective March 1, 2022, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by one and one half percent (1.5%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

b. Effective January 1, 2023, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by two percent (2.0%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

The prices in the tariff may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 12. MISCELLANEOUS CHANGES TO RATE SCHEDULE SLS:

Effective March 1, 2022, remove all reference and prices for SL_DOM_M from Rate Schedule SLS and add “Effective the first full billing cycle after the following date(s), the charge will be as follows:” in Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations. _

**Section 13. MISCELLANEOUS UPDATES DUE TO COMMERCIAL
RESTRUCTURE DELAY:**

- a. Effective September 17, 2021, modify Rate Schedule CB by adding “Summer Super Peak Demand Charge” to Section VI, Subsection B.
- b. Effective September 17, 2021, modify Rate Schedule EAPR by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.
- c. Effective September 17, 2021, modify Rate Schedule EDR by adding “Summer Super Peak Demand Charge” to Section III, Subsections A and B.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

**Section 14. MODIFICATIONS TO GENERATOR STANDBY SERVICE
LANGUAGE:**

- a. Effective September 17, 2021, delete Section V, Subsection D, Subsection 2 of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4.
- b. Effective September 17, 2021, modify the following language in Section V, Subsection D of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

- c. Effective March 1, 2022, delete Section IV, Subsection E, Subsection 2 of Rate Schedule R.
- d. Effective March 1, 2022, modify the following language in Section IV, Subsection E of Rate Schedule R as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

e. Effective March 1, 2022, delete Section IV, Subsection D, Subsection 2 of Rate Schedule R-TOD.

f. Effective March 1, 2022, modify the following language in Section IV, Subsection D of Rate Schedule R-TOD as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

g. Effective March 1, 2022, delete Section IV, Subsection A, Subsection 2 of Rate Schedule AG.

h. Effective March 1, 2022, modify the following language in Section IV, Subsection A of Rate Schedule AG as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 15. MODIFICATIONS TO RATE SCHEDULE EAPR:

a. Effective September 17, 2021, add “Maximum Demand Charge (kW)” to Section V, Subsection A in Rate Schedule EAPR.

b. Effective January 1, 2022, remove the following language from Section III of Rate Schedule EAPR:

Beginning as early as the first full bill cycle in 2021

c. Effective January 1, 2022, remove the reference to 2021 in the table in Section III, Subsection 2 of Rate Schedule EAPR.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 16. MODIFICATIONS TO RATE SCHEDULE EDR:

Effective September 17, 2021, modify Section IV, Subsection B of Rate Schedule EDR as follows:

*New customers must apply for the EDR option prior to commencement of service with SMUD. Temporary service is not eligible for the EDR option. Applicants will have 12 months from the agreement date to reach the maximum demand of at least 300 kW load requirement. The effective start date for the EDR for new customers is the date of the ~~first meter read for billing~~ **first billing period** after three consecutive months with a maximum demand of at least 300 kW*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 17. MODIFICATIONS TO RATE SCHEDULE HGA:

a. Effective January 1, 2022, modify Section II, Subsection A of Rate Schedules HGA as follows:

*SMUD estimates that each inch of precipitation results in ~~35,000~~ **30,000** megawatt hours (MWh) of generation.*

b. Effective January 1, 2022, modify Section III, Subsection B of Rate Schedule HGA as follows:

Generation Conversion

*$\pm \text{IPV} \times \del{35,000} \text{ **30,000** MWh/inch} = \pm \text{MWh}$*

*The variance of hydro generation, in megawatt hours, equals the inches of precipitation variance $\times \del{35,000} \text{ **30,000** MWh/inch}.$*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 18. MODIFICATIONS TO RATE SCHEDULE RBC:

- a. Effective September 17, 2021, modify Section VI, Subsection C of

Rate Schedule RBC as follows:

*Customers taking service on this Rate Schedule are not eligible to take service on Rate Schedules ~~Not Energy Metering (NEM)~~ **NEM1 or SSR.***

- b. Effective September 17, 2021, add “Summer Peak Demand Charge” to Section IV, Subsection A of Rate Schedule RBC.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 19. UPDATE RULE AND REGULATION 13:

- a. Effective September 17, 2021, modify Section II of Rule and

Regulation 13 as follows:

*Within three years of the date when service was first delivered, service will be considered permanent and payments made in excess of **delinquent** meter and service charges shall be refunded without interest when a customer served under this rule has requested a refund of temporary charges, and has:*

1. *Installed sewer, water, and foundation; or*
2. *Operated the same or greater electrical load originally installed for a period of 36 consecutive months from the date when service was first delivered under this rule.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 20. ALTERNATIVE RECOMMENDATION 1: SMUD received a recommendation to back out the “9.2% scalar” built into the original time of day (TOD)

rates in 2017, plus all of the across the board rate increases that have increased that scalar up to about 10.7% before applying the proposed 1.5% and 2.0% rate increases. This Board has considered this alternative recommendation 1 and has determined not to adopt the alternative recommendation for the following reasons:

- This rate action does not address the current residential 2021 rates.
This Board approved the current residential 2021 rates in the 2019 rate action.
- The use of a scalar is described in the 2017 CEO & GM Report, under Appendix I. The scalar was used to reconcile marginal cost to achieve a revenue neutral restructured TOD rate design prior to adjusting the rates with the proposed 2018 and 2019 rate increases adopted in 2017.
- Increasing marginal cost rates by a scalar (or equal percentage of marginal cost) is an accepted practice by the industry and is used to ensure sufficient collection of revenue to meet costs.
- Reducing rate by the scalar would negatively impact SMUD's financial position. Rating agencies could downgrade SMUD credit rating which would increase costs of borrowing which is needed to fund capital projects, and the increased borrowing costs would make future rate increases higher.

Section 21. ALTERNATIVE RECOMMENDATION 2: SMUD received several comments to provide more details on the Critical Peak Pricing (CPP) Rate.

This Board has considered the comments in this alternative recommendation 2 and is providing the following information as requested:

- Staff's proposal includes adequate detail to establish the CPP Rate on pages 43-46 of the CEO and GM Report.
- The prices for the CPP Rate will be included on the SMUD website to allow for flexibility in adjusting the rate to increase participation. The actual 2022 prices will be calculated at the end of 2021 based on market conditions at that time. Staff will then post the prices to the website.

~~Section 21.~~Section 22. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

~~Section 22.~~Section 23. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

- (A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.
- (C) The above findings are based on information set forth in the CEO & GM Report.

~~Section 23.~~Section 24. The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

~~Section 24.~~Section 25. To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300

community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in one meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on www.smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus, and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial targets in years 2022 and 2023, consisting of:

- Wildfire prevention and mitigation, due to increased costs and requirements for vegetation management and insurance for wildfire; and
- Infrastructure improvements to maintain high reliability, including continued investments in our distribution and transmission systems, as well as meeting regulatory requirements; and
- Clean energy compliance requirements – investing in clean energy resources like more wind, solar, hydro power and biogas to meet updated state requirements; and
- Increased operating costs, including materials and labor, due to the COVID-19 pandemic and the impacts it has had to global supply chains; and

WHEREAS, SMUD has adopted a robust risk-based prioritization process to develop operational efficiencies and other cost saving measures to offset higher costs and ensure that rate increases are less than the forecasted rate of inflation; and

WHEREAS, it is necessary for SMUD to increase retail rates by one and a half percent (1.5%) for all customers effective March 1, 2022, and two percent (2.0%) for all customers effective January 1, 2023, in order to continue to meet the objectives and metrics set forth in this Board's Strategic Directions; and

WHEREAS, the recommendations in the CEO & GM Report include minor language amendments in Rate Schedules R and R-TOD to improve clarity of which

months are included in each season, which rates customers may enroll in, and the closure of the Legacy and TOD (4-7 p.m.) rates; and

WHEREAS, SMUD proposes a new optional Residential CPP Rate for customers participating in a qualified program that will offer a per kWh discount on summer Off-Peak and Mid-Peak hours in exchange for a higher per kWh price during times when the grid is most stressed, up to 50 hours per summer; energy sent to the grid during CPP events will be compensated at the CPP event price; the CPP Rate will encourage customers to reduce their energy consumption during those times when the grid is most impacted, and send energy to the grid from solar or battery storage, thereby reducing stress on the grid, improving reliability, and promoting storage adoption; and

WHEREAS, on August 20, 2020, the Board approved postponing the implementation of the commercial rate restructure for one year, with the transition completing no later than May 31, 2022, as a result of the COVID-19 pandemic's impact on SMUD's operations and shifted priorities; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to reflect the delayed implementation of the commercial rate restructure to begin as early as October 1, 2021; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedules CB, CHP, EAPR, and EDR to reflect the delayed implementation of the commercial rate restructure timing; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 to improve clarity and add storage systems in the list of devices that would allow customers to request an adjustment to their 12-month maximum demand; and

WHEREAS, the recommendations in the CEO & GM Report include updating the language in Rate Schedule CI-TOD1 to more accurately reflect the new rates nomenclature; and

WHEREAS, the recommendations in the CEO & GM Report include updating the applicability section of Rate Schedule CI-TOD2 to more clearly define which customers are subject to Rate Schedule CI-TOD2; and

WHEREAS, the recommendations in the CEO & GM Report include adding “Maximum Demand Charge” to the proration language of Rate Schedule AG to reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report include removing all language referencing rate category SL_DOM_M from Rate Schedule SLS; and

WHEREAS, the recommendations in the CEO & GM Report include adding language back into Rate Schedule SLS that was inadvertently removed in a prior rate action; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedules AG, CI-TOD1, CI-TOD2, CI-TOD3, CI-TOD4, R and R-TOD to clarify which customers are exempt from the Generator Standby Service Charge; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule EAPR to reflect the end of the residential low-income discount transition and add the Maximum Demand Charge to the list of rate components that qualify for the Energy Assistance Program Rate discount; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule EDR by replacing the reference to the first meter read with a reference to the first billing period to align with the use of digital communicating meters; and

WHEREAS, the recommendations in the CEO & GM Report include modifying Rate Schedule HGA by updating the generation amount from 35,000 MWh/inch to 30,000 MWh/inch to reflect new Federal Energy Regulatory Commission (FERC) licensing requirements and data collected since the implementation of Rate Schedule HGA; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rate Schedule RBC by adding in the Summer Peak Demand Charge and updating the reference to Rate Schedule NEM with “Rate Schedules NEM1 and SSR” to reflect the updates approved by the Board in the 2019 rate action and the new Solar and Storage Rate; and

WHEREAS, the recommendations in the CEO & GM Report include updating Rule and Regulation 13 – Temporary Service to more accurately reflect current practices; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, including:

- The Board establishes a rate target of 18 percent below Pacific Gas & Electric Company's published rates on a system average basis. In addition, the Board establishes a rate target of at least 10 percent below PG&E's published rates for each customer class;
- SMUD's rates shall be competitive with other local utilities on a system average basis;
- In addition, SMUD's rates shall be designed to balance and achieve the following goals:
 - Reflect the cost of energy when it is used or exported to the SMUD grid;
 - Reduce consumption during periods of high system demand;
 - Encourage energy efficiency, conservation and carbon reduction;
 - Encourage cost effective and environmentally beneficial Distributed Energy Resources (DERs) (examples of DERs include but are not limited to rooftop solar, battery storage and energy reduction applications);
 - Minimize the rate of change in the transition from one rate design to another;
 - Provide customers flexibility and choices;
 - Be as simple and easy to understand as possible;

- Address the needs of people with low incomes and severe medical conditions; and
- Equitably allocate costs across and within customer classes; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the recommendations to increase rates 1.5% on March 1, 2022, and 2.0% on January 1, 2023, for all customer classes are made on an across-the-board basis to reflect SMUD's cost increases of proportionate impact on all customer classes on average and therefore does not require an examination of the allocation of costs among customer classes or of class definitions; and

WHEREAS, the recommendations to implement the restructuring of the commercial rate restructure bring commercial Time-of-Day (TOD) rates and small commercial customer rates closer to the cost of service, including small commercial

Energy Assistance Program Rate (EAPR) customers that receive a discounted demand charge; and

WHEREAS, this Board has carefully considered the CEO & GM Report public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. RATE INCREASE FOR RESIDENTIAL RATES:

a. Effective March 1, 2022, adopt an increase in residential service rates by one and one half percent (1.5%). The increases will apply to all residential rates. The increases apply to the System Infrastructure Fixed Charge (SIFC), as well as the electricity usage charges and miscellaneous charges on customer bills.

b. Effective January 1, 2023, adopt an increase in residential service rates by two percent (2.0%). The increases will apply to all residential rates. The increases apply to the SIFC, as well as the electricity usage charges and miscellaneous charges on customer bills.

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 2. CHANGES TO RATE SCHEDULE R:

- a. Effective January 1, 2022, add the following language in Section I,

Subsection A of Rate Schedule R:

6. Customers who have a storage facility without an associated generating facility are not eligible to enroll in the Fixed Rate.

- b. Effective January 1, 2022, modify Section I, Subsection A,

Subsection 3 in Rate Schedule R as follows:

*3. Customers who qualify for Rate Schedule NEM1 and have an eligible renewable electrical generation facility that was approved for installation prior to January 1, 2018 are eligible to enroll in the Fixed Rate **and** ~~NEM1~~ customers that are enrolled in the Fixed Rate may remain on the Fixed Rate after December 31, 2022.*

- c. Effective January 1, 2022, modify Section I, Subsection B,

Subsections 3 and 4 in Rate Schedule R as follows:

*3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018, and are enrolled on the Legacy Rate may remain on this closed rate until **transitioned to SMUD's standard TOD (5-8 p.m.) Rate as early as January 1, 2023, as technically feasible** ~~December 31, 2022~~. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.*

*4. The Legacy Rate **will be eliminated once all** ~~terminate for~~ customers ~~with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, and~~ customers will then transition to SMUD's standard residential rate **are removed from this rate and the rate transition is complete.***

d. Effective January 1, 2022, modify Section II, Subsections A and C of Rate Schedule R by adding the months for each season in the rates table and removing the following language:

~~**Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.*~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. CHANGES TO RATE SCHEDULE R-TOD:

a. Effective January 1, 2022, add Subsection 3 to Section I in Rate Schedule R-TOD as follows:

3. Customers who have an eligible renewable electrical generation facility under Rate Schedules NEM1 or SSR that was approved for installation by SMUD on or after January 1, 2018, or who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2018 must be on this Rate Schedule R-TOD.

b. Effective January 1, 2022, modify the language in Section I, Subsection A in Rate Schedule R-TOD as follows:

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD's residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.

~~*2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD after December 31, 2017, must be on the TOD (5-8 p.m.) Rate.*~~

32. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.

~~3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM2 must be on the TOD (5-8 p.m.) Rate.~~

43. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

c. Effective January 1, 2022, modify Section I, Subsection B,

Subsection 3 in Rate Schedule R-TOD as follows:

*3. The TOD (4-7 p.m.) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 on their first billing cycle that closes in 2023, **as early as January 1, 2023 as technically feasible.** Customers will then transition to SMUD's standard residential **TOD (5-8 p.m.) Rate, as determined by SMUD.***

d. Effective January 1, 2022, modify Section II, Subsection A of Rate

Schedule R-TOD by adding the months for each season in the rates table and removing the following language:

~~*Non-summer Season includes Fall (Oct 1—Nov 30), Winter (Dec 1—Mar 31) and Spring (Apr 1—May 31) periods.~~

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. CRITICAL PEAK PRICING RATE:

a. Effective January 1, 2022, add Subsection C to Section I in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing (CPP) Rate (rate categories RTC1 and RTC2)

1. The CPP rate is available as of June 1, 2022 for customers who are participating in a qualifying program. Customers that have accepted a storage incentive under the Solar and Storage Rate incentive program are

required to enroll in this rate for a duration as determined by SMUD program rules posted on www.smud.org.

2. A maximum of 30,000 customers may be enrolled in this rate at any given time.

3. CPP Events may range from one to four hours, but not more than once per day. CPP Events may be called during any hour of the day during summer months, including holidays and weekends, up to 50 hours per summer. CPP Events may span multiple time-of-day periods.

4. CPP Events will be announced by SMUD a day in advance. However, in the event of a system emergency, announcements may occur the same day as the event.

5. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

b. Effective January 1, 2022, add Subsection C to Section II in Rate

Schedule R-TOD as follows:

C. Optional Critical Peak Pricing Rate

1. The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).

2. The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.

3. During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.

4. During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.

5. The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org

c. Effective January 1, 2022, customers electing to enroll in the Critical Peak Pricing Rate may also receive the Electric Vehicle discount.

d. The Critical Peak Pricing Rate will follow new rates nomenclature as determined by SMUD.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. RATE INCREASE FOR AGRICULTURAL AND COMMERCIAL RATES:

a. Effective March 1, 2022, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Services, and Combined Heat & Power Distributed Generation rates (Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, formerly known as Rate Schedules GS, GS-TOU1, GS-TOU2, GS-TOU3, and Rate Schedules AG, CHP, DWS, and GS-TDP) shall be increased by one and one half percent (1.5%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Super Peak Demand Charges;
- Summer Peak Demand Charges;

- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

b. Effective January 1, 2023, Commercial & Industrial Time-of-Day, General Service Temperature Dependent, Agricultural Service, Distribution Wheeling Service, and Combined Heat & Power Distributed Generation rates, (Rate Schedules AG, CHP, CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4, DWS and GS-TDP) shall be increased by two percent (2.0%) through the following components:

- Electricity Usage Charges;
- System Infrastructure Fixed Charge;
- Summer Peak Demand Charges;
- Site Infrastructure Charges;
- Maximum Demand Charges;
- Generator Standby Charges;
- Power Factor and other miscellaneous charges;
- Distribution Wheeling Charges;
- Reserved Capacity Charge/Rate

Prices in the tariffs may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 6. IMPLEMENTATION OF COMMERCIAL RATE

RESTRUCTURE:

a. Effective September 17, 2021, move the transition language from Section I, Subsections A and B, to a new Section II. Transition to Restructured Commercial & Industrial Time-of-Day Rates in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

b. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD1 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GSN_T and GSS_T) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-0 and CITS-1) beginning the first full billing cycle in October 2021.*
- 3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).*

c. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD2 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

- 1. The Legacy commercial rates (GUS_S and GUP_S) will be closed to new customers October 1, 2021.*
- 2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured*

Commercial & Industrial Time-of-Day rates (CITS-2 and CIP-2) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

d. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD3 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_M, GUP_M and GUT_M) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-3, CIP-3, and CIT-3) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

e. Effective September 17, 2021, replace the language in Section II of Rate Schedule CI-TOD4 with the following language:

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_L, GUP_L and GUT_L) will be closed to new customers October 1, 2021.

2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-4, CIP-4, and CIT-4) beginning the first full billing cycle in October 2021.

3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

f. Effective September 17, 2021, modify Section III, Subsection A in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 by adding the closing date, October 1, 2021, to the title of Subsection A and the following sentence after the Legacy rate prices:

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

g. Effective September 17, 2021, update the language after the price table in Section III, Subsection C in Rate Schedule CI-TOD1 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

h. Effective September 17, 2021, update the language after the price table in Section III, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*New restructured commercial rates beyond ~~2021~~**2023** are effective as shown in Section ~~VIII~~**IX**. Transition Schedule.*

i. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section V, Subsection D of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges, Site Infrastructure Charges, **Summer Super Peak Demand Charge**, Summer Peak Demand Charges, as well as electricity usage charges for SMUD-provided power.*

j. Effective September 17, 2021, add the Maximum Demand Charge to Section V, Subsection D of Rate Schedule CI-TOD1 as follows:

*In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, **Maximum Demand Charge**, Summer Peak Demand Charges ~~(if applicable)~~ and electricity usage charges for SMUD-provided power.*

k. Effective September 17, 2021, update the date the Legacy commercial rates will close, October 1, 2021, in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

l. Effective September 17, 2021, modify the title of Section VII, Subsection A of Rate Schedule CI-TOD1 as follows:

*B. Legacy ~~GSN_T, GSS_T and GFN~~**Time-of-Use Billing Periods**
(closed as of October 1, 2021)*

m. Effective September 17, 2021, add the Summer Super Peak Demand Charge to Section VIII, Subsection B in Rate Schedules CI-TOD2, CI-TOD3 and CI-TOD4.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 7. MISCELLANEOUS COMMERCIAL UPDATES:

a. Effective September 17, 2021, modify Section V, Subsection C in Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3, and CI-TOD4 as follows:

*C. Implementation of Energy Efficiency or Installation of New Solar/Photovoltaic **or Storage Systems***

*Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic **or storage** system to offset their on-site energy usage may request, in writing, within 30 days of*

*the project completion and commissioning, an adjustment to their ~~billing demand~~ **twelve month maximum demand** based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted ~~billing demand~~ **twelve month maximum demand** is valid for 12 months or until it is exceeded by actual maximum demand.*

b. Effective September 17, 2021, move Section V, Subsection D to a new Section VII. Commercial & Industrial Time-of-Day Billing Periods, with the remaining section numbers updated accordingly in Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

c. Effective September 17, 2021, add the holidays in Section VII, Subsection A of Rate Schedules CI-TOD2, CI-TOD3, and CI-TOD4.

d. Effective September 17, 2021, modify the title of Section VII, Subsection B of Rate Schedule CI-TOD1 as follows:

B. Restructured ~~CITS-0 and CITS-1~~ Time-of-Day Billing Periods

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 8. MODIFICATIONS TO RATE SCHEDULE CI-TOD1:

a. Effective September 17, 2021, update Section I, Subsection A of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of 20 kW or less. Whenever the monthly maximum demand exceeds 20 kW for any three consecutive months and the monthly energy usage is at least 7,300 kWh for any three consecutive months within a 12-month period, the account will be billed on the applicable ~~demand~~ rate. To return to the ~~nondemand~~ **CITS-0** rate, the monthly maximum demand must be 20 kW or less for 12-consecutive months or the usage must be less than 7,300 kWh for 12 consecutive months.*

b. Effective September 17, 2021, update Section I, Subsection C of Rate Schedule CI-TOD1 as follows:

*These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of at least 21 kW but does not exceed 299 kW for any three consecutive months and monthly energy usage of at least 7,300 kWh for any three consecutive months within a 12-month period. The customer will be billed on this ~~demand~~ rate unless the monthly usage is less than 7,300 **kWh** for 12 consecutive months; or the maximum demand falls below 21 kW for 12 consecutive months; or the monthly maximum demand exceeds 299 kW for three consecutive months.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 9. MODIFICATIONS TO RATE SCHEDULE CI-TOD2:

a. Effective September 17, 2021, modify Section I of Rate Schedule CI-TOD2 as follows:

*This Rate Schedule CI-TOD2 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand of at least 300 kW for three consecutive months, but not greater than 499 kW for three consecutive months during the preceding 12 months, ~~and for all accounts previously served at the primary level on Rate Schedule GS.~~ Accounts **served at the secondary service voltage level** will remain on the CI-TOD2 rate schedule unless monthly maximum demand falls below 300 kW for 12 consecutive months or exceeds 499 kW for three consecutive months. **Accounts served at the primary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand exceeds 499 kW for three consecutive months.** This schedule is also mandatory for accounts with contract capacity of at least 300 kW, but not greater than 499 kW. The demand for any month shall be the maximum 15-minute kW delivery during the month.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 10. MODIFICATIONS TO RATE SCHEDULE AG:

Effective January 1, 2022, add “Maximum Demand Charge” to the proration language in Section VI, Subsection B of Rate Schedule AG.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 11. CHANGES TO STREET, TRAFFIC, AND LIGHTING

SERVICES:

a. Effective March 1, 2022, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by one and one half percent (1.5%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

b. Effective January 1, 2023, Lighting Services (Rate Schedules SLS, TSS, TC ILS and NLGT) billing components shall be increased by two percent (2.0%). The rate increases do not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures.

The prices in the tariff may reflect minor rounding differences.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 12. MISCELLANEOUS CHANGES TO RATE SCHEDULE SLS:

Effective March 1, 2022, remove all reference and prices for SL_DOM_M from Rate Schedule SLS and add “Effective the first full billing cycle after the following date(s), the charge will be as follows:” in Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations. _

**Section 13. MISCELLANEOUS UPDATES DUE TO COMMERCIAL
RESTRUCTURE DELAY:**

- a. Effective September 17, 2021, modify Rate Schedule CB by adding “Summer Super Peak Demand Charge” to Section VI, Subsection B.
- b. Effective September 17, 2021, modify Rate Schedule EAPR by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.
- c. Effective September 17, 2021, modify Rate Schedule EDR by adding “Summer Super Peak Demand Charge” to Section III, Subsections A and B.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

**Section 14. MODIFICATIONS TO GENERATOR STANDBY SERVICE
LANGUAGE:**

- a. Effective September 17, 2021, delete Section V, Subsection D, Subsection 2 of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4.
- b. Effective September 17, 2021, modify the following language in Section V, Subsection D of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

- c. Effective March 1, 2022, delete Section IV, Subsection E, Subsection 2 of Rate Schedule R.
- d. Effective March 1, 2022, modify the following language in Section IV, Subsection E of Rate Schedule R as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

e. Effective March 1, 2022, delete Section IV, Subsection D, Subsection 2 of Rate Schedule R-TOD.

f. Effective March 1, 2022, modify the following language in Section IV, Subsection D of Rate Schedule R-TOD as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

g. Effective March 1, 2022, delete Section IV, Subsection A, Subsection 2 of Rate Schedule AG.

h. Effective March 1, 2022, modify the following language in Section IV, Subsection A of Rate Schedule AG as follows:

*The Generator Standby Service Charge will be waived **only** for qualifying **renewable** ~~not metered~~ generation. Refer to **under** Rate Schedules NEM1 and ~~NEM2~~**SSR**.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 15. MODIFICATIONS TO RATE SCHEDULE EAPR:

a. Effective September 17, 2021, add “Maximum Demand Charge (kW)” to Section V, Subsection A in Rate Schedule EAPR.

b. Effective January 1, 2022, remove the following language from Section III of Rate Schedule EAPR:

Beginning as early as the first full bill cycle in 2021

c. Effective January 1, 2022, remove the reference to 2021 in the table in Section III, Subsection 2 of Rate Schedule EAPR.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 16. MODIFICATIONS TO RATE SCHEDULE EDR:

Effective September 17, 2021, modify Section IV, Subsection B of Rate Schedule EDR as follows:

*New customers must apply for the EDR option prior to commencement of service with SMUD. Temporary service is not eligible for the EDR option. Applicants will have 12 months from the agreement date to reach the maximum demand of at least 300 kW load requirement. The effective start date for the EDR for new customers is the date of the ~~first meter read for billing~~ **first billing period** after three consecutive months with a maximum demand of at least 300 kW*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 17. MODIFICATIONS TO RATE SCHEDULE HGA:

a. Effective January 1, 2022, modify Section II, Subsection A of Rate Schedules HGA as follows:

*SMUD estimates that each inch of precipitation results in ~~35,000~~ **30,000** megawatt hours (MWh) of generation.*

b. Effective January 1, 2022, modify Section III, Subsection B of Rate Schedule HGA as follows:

Generation Conversion

*$\pm \text{IPV} \times \del{35,000} \text{ **30,000** MWh/inch} = \pm \text{MWh}$*

*The variance of hydro generation, in megawatt hours, equals the inches of precipitation variance $\times \del{35,000} \text{ **30,000** MWh/inch}.$*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 18. MODIFICATIONS TO RATE SCHEDULE RBC:

- a. Effective September 17, 2021, modify Section VI, Subsection C of

Rate Schedule RBC as follows:

*Customers taking service on this Rate Schedule are not eligible to take service on Rate Schedules ~~Not Energy Metering (NEM)~~ **NEM1 or SSR.***

- b. Effective September 17, 2021, add “Summer Peak Demand Charge” to Section IV, Subsection A of Rate Schedule RBC.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 19. UPDATE RULE AND REGULATION 13:

- a. Effective September 17, 2021, modify Section II of Rule and

Regulation 13 as follows:

*Within three years of the date when service was first delivered, service will be considered permanent and payments made in excess of **delinquent** meter and service charges shall be refunded without interest when a customer served under this rule has requested a refund of temporary charges, and has:*

1. *Installed sewer, water, and foundation; or*
2. *Operated the same or greater electrical load originally installed for a period of 36 consecutive months from the date when service was first delivered under this rule.*

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 20. ALTERNATIVE RECOMMENDATION 1: SMUD received a recommendation to back out the “9.2% scalar” built into the original time of day (TOD)

rates in 2017, plus all of the across the board rate increases that have increased that scalar up to about 10.7% before applying the proposed 1.5% and 2.0% rate increases. This Board has considered this alternative recommendation 1 and has determined not to adopt the alternative recommendation for the following reasons:

- This rate action does not address the current residential 2021 rates. This Board approved the current residential 2021 rates in the 2019 rate action.
- The use of a scalar is described in the 2017 CEO & GM Report, under Appendix I. The scalar was used to reconcile marginal cost to achieve a revenue neutral restructured TOD rate design prior to adjusting the rates with the proposed 2018 and 2019 rate increases adopted in 2017.
- Increasing marginal cost rates by a scalar (or equal percentage of marginal cost) is an accepted practice by the industry and is used to ensure sufficient collection of revenue to meet costs.
- Reducing rate by the scalar would negatively impact SMUD's financial position. Rating agencies could downgrade SMUD credit rating which would increase costs of borrowing which is needed to fund capital projects, and the increased borrowing costs would make future rate increases higher.

Section 21. ALTERNATIVE RECOMMENDATION 2: SMUD received several comments to provide more details on the Critical Peak Pricing (CPP) Rate.

This Board has considered the comments in this alternative recommendation 2 and is providing the following information as requested:

- Staff's proposal includes adequate detail to establish the CPP Rate on pages 43-46 of the CEO and GM Report.
- The prices for the CPP Rate will be included on the SMUD website to allow for flexibility in adjusting the rate to increase participation. The actual 2022 prices will be calculated at the end of 2021 based on market conditions at that time. Staff will then post the prices to the website.

Section 22. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

Section 23. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

(A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.

(C) The above findings are based on information set forth in the CEO & GM Report.

Section 24. The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

Section 25. To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

Rates, Rules and Regulations Effective in 2021

DRAFT
Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

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Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

Commercial & Industrial Campus Billing Rate Schedule CB

I. Applicability

This Rate Schedule CB is optional for Commercial & Industrial customers served at a common address or industrial campus that have several accounts or service entrances on the same contiguous campus. Campus Billing provides for either hardwire or post-metering of a combination of these accounts to a single load shape for billing purposes. Under this option the customer receives one bill for the entire campus and the aggregated monthly maximum kW is used to determine the applicable rate schedule under which the campus account will be billed. Campus billing is available to customers where at least one existing account to be included in the campus account is on Rate Schedules CI-TOD2, CI-TOD3, or CI-TOD4.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

II. Pricing Structure

A. System Infrastructure Fixed Charge

The customer pays a single System Infrastructure Fixed Charge to recover the cost of maintaining or replacing one meter and the overhead costs for billing and customer service.

B. Campus Meters Charge

The customer must pay a Campus Meters Charge for all but the first meter. The Campus Meters Charge recovers costs for the meters, Current Transformer (CT), Potential Transformer (PT), meter testing, data management services, auxiliary metering equipment and additional billing services. The Campus Meters Charges vary by service voltage level. Information on the associated monthly charges is available on SMUD’s website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.

C. Data Services Meter Rental

If a data service meter is required for communication with a legacy meter(s) there is an additional fee for rental of the data services meter. Information on the associated monthly charges is available on SMUD’s website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.

D. Rate Changes

Campus billing prices will be subject to any applicable changes to the Commercial & Industrial Time-of-Day rates, the Campus Meter Charges, and the Data Services Meter Rental Charge.

III. Site Infrastructure Charge

When the accounts are aggregated through Campus Billing, SMUD creates a new account with no billing history. As a result, the 12-months maximum kW basis for the Site Infrastructure Charge is initially set by the first month’s maximum kW on the campus account.

IV. Conditions of Service

The following criteria define the conditions under which campus rates would be permitted. Failure to comply with any of these conditions will revoke the option for campus billing and the campus will be returned to individual accounts on their applicable rate.

- A.** All accounts are under the same legal entity buying and consuming the power at the site.

**Commercial & Industrial Campus Billing
Rate Schedule CB**

- B.** The term “legal entity” means the name on each account must be the same company/organization.
- C.** All meters are on a contiguous site. The parcels of land are physically adjacent; the parcels may be separated by public streets or railways.
- D.** No meter provides sub-metering on campus to third parties.
- E.** All meters are served at the same service voltage. SMUD recognizes the following three voltage classes:
 - 1. Transmission – 69 kV or higher
 - 2. Primary – 12 kV or 21 kV
 - 3. Secondary – all voltages lower than 12 kV
- F.** Each meter is capable of interval metering on each service entrance.
If a meter is not capable of interval metering the customer will be charged for the cost of installing such a meter.
- G.** Agricultural Service and CI-TOD1 accounts.

AG and CI-TOD1 can be included in a campus account, however, a campus account cannot consist of solely accounts on Agricultural service or solely on CI-TOD1 or a combination of Agricultural and CI-TOD1 cannot combine into a campus account.
- H.** The campus account maintains or exceeds CI-TOD2 eligibility.
- I.** No use of parallel systems for shifting load between different rate offerings.

Should this occur, SMUD shall have the right to corrective billing on a single rate and full reimbursement of waived System Infrastructure Fixed Charges.
- J.** The customer provides SMUD with a single point of contact for billing and service questions.
- K.** At least one of the proposed campus accounts is on rate schedule CI-TOD2, CI-TOD3 or CI-TOD4 as defined in the applicable rate schedules at the time campus billing is requested.
- L.** All the meters must feed off the same substation as determined by SMUD. For subtransmission customers, all meters must be fed off the same bank at the substation as determined by SMUD.

Campus accounts created before January 1, 2014, are grandfathered under the prior rate option with regard to subsection K, and subsection L. If a grandfathered account requests that additional meters be added to the campus, the addition will be allowed if the service is fed from a substation already part of the campus account.

V. Setting Up a Campus Account

A customer can request campus billing from an Energy Advisor. The Energy Advisor will verify the customer’s accounts meet the requirements and the eligibility for campus billing. If the Energy Advisor determines the accounts are eligible the Energy Advisor will provide a Request for Campus Billing Option form for the customer detailing the startup costs and the ongoing monthly costs. Once the Request form is returned with the customer’s signature acknowledging the costs the Energy Advisor will submit the request to Billing. Campus billing will start on the bill after all accounts have been prepared for campus billing.

VI. Billing**A. Service Rendered**

Service rendered in accordance with this rate is at SMUD’s sole discretion.

Commercial & Industrial Campus Billing Rate Schedule CB

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is less than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is more than 34 days	
Price changes within billing period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

VII. Terminating a Campus Billing Account

If after a rolling twelve-month period the demand for the campus account falls below the minimum demand for a CI-TOD2 rate, the campus account will be terminated. All meters will revert to individual accounts. The accounts will not be eligible to return to a campus account for twelve months thereafter and only if they meet all the criteria for the Campus Billing Option listed in Section IV Conditions of Service. This rule applies to all Campus accounts regardless of the date they were created.

The customer can elect to revert back to individual accounts at any time by contacting Billing or an Energy Advisor. All meters will be converted to single accounts and the corresponding current rates will be assigned based on usage and demand. It may take more than one billing cycle to change the campus account back to individual accounts.

VIII. Reinstating a Campus Billing Account

After terminating the Campus Billing Option, the campus account, or dropping one or more meters from the campus account, the customer cannot have any of the meters that comprised the campus account reinstated on an existing or new campus account for 12 months from the date of removal from the option.

After 12 months, the meters can be used to create a new campus account or be added to an existing campus.

If the original campus account no longer exists, the procedure for setting up a Campus Account must be followed. See section V.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

I. Applicability

This Rate Schedule CI-TOD1 applies to single- or three-phase service delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand that does not exceed 299 kW for three or more consecutive months. Commercial & Industrial Time-of-Day customers include commercial and nonagricultural irrigation pumping accounts. This schedule also applies to Commercial & Industrial Time-of-Day accounts with contract capacity of 299 kW or less. The demand for any month shall be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

A. C&I Secondary 0-20 kW (rate categories GSN_T/CITS-0)

These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of 20 kW or less. Whenever the monthly maximum demand exceeds 20 kW for *any* three consecutive months and the monthly energy usage is at least 7,300 kWh for *any* three consecutive months within a 12-month period, the account will be billed on the applicable rate. To return to the CITS-0 rate, the monthly maximum demand must be 20 kW or less for 12-consecutive months **or** the usage must be less than 7,300 kWh for 12 consecutive months.

B. Small Nondemand, Nonmetered Service (rate category GFN)

This rate applies to Commercial & Industrial Time-of-Day accounts where an account's monthly consumption of electricity is consistently small or can be predetermined with reasonable accuracy by reference to the capacity of equipment served and the hours of operation, SMUD, at its discretion, and with the customer's consent, will calculate electricity consumed in lieu of providing metering equipment.

C. C&I Secondary 21-299 kW (rate categories GSS_T/CITS-1)

These rates apply to Commercial & Industrial Time-of-Day accounts with a monthly maximum demand of at least 21 kW but does not exceed 299 kW for *any* three consecutive months **and** monthly energy usage of at least 7,300 kWh for *any* three consecutive months within a 12-month period. The customer will be billed on this rate unless the monthly usage is less than 7,300 kWh for 12 consecutive months; or the maximum demand falls below 21 kW for 12 consecutive months; or the monthly maximum demand exceeds 299 kW for three consecutive months.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GSN_T and GSS_T) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-0 and CITS-1) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GSN T (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.35	\$22.80	\$23.15
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1441	\$0.1470	\$0.1492
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.35	n/a	\$23.15
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.3327	n/a	\$0.3444
Off-Peak <i>\$/kWh</i>	\$0.1216	n/a	\$0.1260
GSS T (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$27.15	\$27.70	\$28.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$8.390	\$8.560	\$8.688
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1131	\$0.1153	\$0.1170
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$27.15	n/a	\$28.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$8.390	n/a	\$8.688
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.2885	n/a	\$0.2987
Off-Peak <i>\$/kWh</i>	\$0.1001	n/a	\$0.1036

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

B. GFN Rates

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
GFN				
All Year				
System Infrastructure Fixed Charge <i>per month per meter</i>	\$9.95	\$10.15	\$10.30	\$10.50
Electricity Usage Charge				
All day <i>\$/kWh</i>	\$0.1458	\$0.1487	\$0.1509	\$0.1539

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

C. Restructured Commercial & Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-0: C&I Secondary 0-20 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.40	\$28.85	\$35.15
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$0.000	\$0.000	\$0.000
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1430	\$0.1451	\$0.1440
Off-Peak <i>\$/kWh</i>	\$0.1393	\$0.1414	\$0.1364
Off-Peak Saver <i>\$/kWh</i>	\$0.1373	\$0.1394	\$0.1323
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.40	\$28.85	\$35.15
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$0.000	\$0.000	\$0.000
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.2355	\$0.2390	\$0.2554
Off-Peak <i>\$/kWh</i>	\$0.1331	\$0.1351	\$0.1349
CITS-1: C&I Secondary 21-299 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$88.05	\$89.35	\$158.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$7.930	\$8.049	\$7.568
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1169	\$0.1187	\$0.1230
Off-Peak <i>\$/kWh</i>	\$0.1136	\$0.1153	\$0.1158
Off-Peak Saver <i>\$/kWh</i>	\$0.1078	\$0.1094	\$0.1030
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$88.05	\$89.35	\$158.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$7.930	\$8.049	\$7.568
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$1.680	\$1.705	\$3.468
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1897	\$0.1925	\$0.1983
Off-Peak <i>\$/kWh</i>	\$0.1102	\$0.1119	\$0.1119

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges:

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Rates. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar/Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **CI-TOD1-3**

Effective: **September 17, 2021**

Edition: **September 17, 2021**

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

D. Generator Standby Service Option

Generator Standby Service applies when the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Maximum Demand Charge, Summer Peak Demand Charges and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Options

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. Adjustment (charge per month varies)

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate per excess KVAR

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

1. Winter (October 1 – May 31) All hours are off-peak.

2. Summer Time-of-Use Billing Periods (June 1 – September 30)

On-Peak	Summer weekdays between 3:00 p.m. and 6:00 p.m.
Off-Peak	All other hours, including holidays shown below

Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

1. Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD1

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this Rate Schedule will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Peak Demand Charge, Maximum Demand Charge, and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

**Commercial & Industrial Time-of-Day
Rate Schedule CI-TOD1**

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*	2026*	2027*	2028*
CITS-0: C&I Secondary 0-20 kW									
System Infrastructure Fixed Charge	per month	\$28.40	\$28.85	\$35.15	\$35.65	\$36.15	\$36.60	\$37.10	\$37.60
Maximum Demand Charge	per kW	\$0.000	\$0.000	\$0.000	\$0.694	\$1.387	\$2.081	\$2.775	\$3.468
Non-Summer Peak	per kWh	\$0.1430	\$0.1451	\$0.1440	\$0.1407	\$0.1374	\$0.1341	\$0.1307	\$0.1274
Non-Summer Off-Peak	per kWh	\$0.1393	\$0.1414	\$0.1364	\$0.1300	\$0.1237	\$0.1173	\$0.1110	\$0.1046
Non-Summer Off-Peak Saver	per kWh	\$0.1373	\$0.1394	\$0.1323	\$0.1242	\$0.1163	\$0.1084	\$0.1003	\$0.0923
Summer Peak	per kWh	\$0.2355	\$0.2390	\$0.2554	\$0.2645	\$0.2736	\$0.2827	\$0.2917	\$0.3009
Summer Off-Peak	per kWh	\$0.1331	\$0.1351	\$0.1349	\$0.1324	\$0.1300	\$0.1277	\$0.1253	\$0.1229
CITS-1: C&I Secondary 21-299 kW									
System Infrastructure Fixed Charge	per month	\$88.05	\$89.35	\$158.30	\$225.40	\$292.50	\$359.65	\$425.25	\$425.25
Site Infrastructure Charge	per kW	\$7.930	\$8.049	\$7.568	\$6.916	\$6.274	\$5.622	\$4.969	\$4.969
Summer Peak Demand Charge	per kW	\$1.680	\$1.705	\$3.468	\$5.208	\$6.937	\$8.676	\$10.415	\$10.415
Non-Summer Peak	per kWh	\$0.1169	\$0.1187	\$0.1230	\$0.1249	\$0.1267	\$0.1287	\$0.1306	\$0.1306
Non-Summer Off-Peak	per kWh	\$0.1136	\$0.1153	\$0.1158	\$0.1138	\$0.1119	\$0.1101	\$0.1082	\$0.1082
Non-Summer Off-Peak Saver	per kWh	\$0.1078	\$0.1094	\$0.1030	\$0.0945	\$0.0859	\$0.0773	\$0.0691	\$0.0691
Summer Peak	per kWh	\$0.1897	\$0.1925	\$0.1983	\$0.2001	\$0.2020	\$0.2039	\$0.2057	\$0.2057
Summer Off-Peak	per kWh	\$0.1102	\$0.1119	\$0.1119	\$0.1099	\$0.1079	\$0.1058	\$0.1038	\$0.1038

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

I. Applicability

This Rate Schedule CI-TOD2 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all commercial and industrial (C&I) accounts with monthly maximum demand of at least 300 kW for three consecutive months, but not greater than 499 kW for three consecutive months during the preceding 12 months. Accounts served at the secondary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand falls below 300 kW for 12 consecutive months or exceeds 499 kW for three consecutive months. Accounts served at the primary service voltage level will remain on the CI-TOD2 rate schedule unless monthly maximum demand exceeds 499 kW for three consecutive months. This schedule is also mandatory for accounts with contract capacity of at least 300 kW, but not greater than 499 kW. The demand for any month shall be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_S and GUP_S) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-2 and CIP-2) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS_S (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.200	\$4.280	\$4.344
Electricity Usage Charge			
On-Peak \$/kWh	\$0.1154	\$0.1178	\$0.1196
Off-Peak \$/kWh	\$0.0917	\$0.0935	\$0.0949
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.200	n/a	\$4.344
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$8.470	n/a	\$8.770
Electricity Usage Charge			
Super-Peak \$/kWh	\$0.2220	n/a	\$0.2299
On-Peak \$/kWh	\$0.1517	n/a	\$0.1570
Off-Peak \$/kWh	\$0.1206	n/a	\$0.1248
GUP_S (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.770	\$3.840	\$3.898
Electricity Usage Charge			
On-Peak \$/kWh	\$0.1089	\$0.1112	\$0.1129
Off-Peak \$/kWh	\$0.0866	\$0.0884	\$0.0897
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.770	n/a	\$3.898
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.720	n/a	\$7.998
Electricity Usage Charge			
Super-Peak \$/kWh	\$0.2113	n/a	\$0.2187
On-Peak \$/kWh	\$0.1461	n/a	\$0.1512
Off-Peak \$/kWh	\$0.1147	n/a	\$0.1188

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

B. Restructured Commercial & Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-2: C&I Secondary 300-499 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$201.60	\$204.60	\$428.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.360	\$4.425	\$4.597
Electricity Usage Charge			
Peak \$/kWh	\$0.1194	\$0.1212	\$0.1236
Off-Peak \$/kWh	\$0.0964	\$0.0979	\$0.1000
Off-Peak Saver \$/kWh	\$0.0956	\$0.0970	\$0.0990
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$201.60	\$204.60	\$428.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.360	\$4.425	\$4.597
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.440	\$9.582	\$9.877
Electricity Usage Charge			
Peak \$/kWh	\$0.2153	\$0.2185	\$0.2195
Off-Peak \$/kWh	\$0.1356	\$0.1376	\$0.1333
CITP-2: C&I Primary 300-499 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$154.45	\$156.75	\$204.95
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.640	\$3.695	\$3.551
Electricity Usage Charge			
Peak \$/kWh	\$0.1141	\$0.1158	\$0.1249
Off-Peak \$/kWh	\$0.0924	\$0.0938	\$0.1033
Off-Peak Saver \$/kWh	\$0.0907	\$0.0921	\$0.0939
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$154.45	\$156.75	\$204.95
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.640	\$3.695	\$3.551
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$8.690	\$8.820	\$9.401
Electricity Usage Charge			
Peak \$/kWh	\$0.2075	\$0.2106	\$0.2016
Off-Peak \$/kWh	\$0.1326	\$0.1346	\$0.1277

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, as well as electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

The customer shall pay for additional equipment and software identified by SMUD meter specialists as necessary for load data collection and upload to the customer electronic system. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as "Primary" or "Subtransmission."

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer's monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer's monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. **Power Factor Adjustment or Waiver**

1. **Adjustment (charge per month varies)**

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for term of waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

VII. Commercial & Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that falls within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service may be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD2

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*	2026*	2027*	2028*
CITS-2: C&I Secondary 300-499 kW									
System Infrastructure Fixed Charge	per month	\$201.60	\$204.60	\$428.35	\$649.65	\$879.70	\$1,116.60	\$1,353.60	\$1,588.80
Site Infrastructure Charge	per kW	\$4.360	\$4.425	\$4.597	\$4.669	\$4.742	\$4.824	\$4.897	\$4.969
Summer Peak Demand Charge	per kW	\$9.440	\$9.582	\$9.877	\$9.980	\$10.094	\$10.198	\$10.301	\$10.415
Non-Summer Peak	per kWh	\$0.1194	\$0.1212	\$0.1236	\$0.1251	\$0.1266	\$0.1281	\$0.1295	\$0.1311
Non-Summer Off-Peak	per kWh	\$0.0964	\$0.0979	\$0.1000	\$0.1015	\$0.1029	\$0.1044	\$0.1059	\$0.1074
Non-Summer Off-Peak Saver	per kWh	\$0.0956	\$0.0970	\$0.0990	\$0.0933	\$0.0873	\$0.0812	\$0.0752	\$0.0691
Summer Peak	per kWh	\$0.2153	\$0.2185	\$0.2195	\$0.2186	\$0.2177	\$0.2168	\$0.2158	\$0.2148
Summer Off-Peak	per kWh	\$0.1356	\$0.1376	\$0.1333	\$0.1277	\$0.1219	\$0.1160	\$0.1101	\$0.1043
CITP-2: C&I Primary 300-499 kW									
System Infrastructure Fixed Charge	per month	\$154.45	\$156.75	\$204.95	\$249.95	\$297.30	\$297.30	\$297.30	\$297.30
Site Infrastructure Charge	per kW	\$3.640	\$3.695	\$3.551	\$3.344	\$3.127	\$3.127	\$3.127	\$3.127
Summer Peak Demand Charge	per kW	\$8.690	\$8.820	\$9.401	\$9.804	\$10.218	\$10.218	\$10.218	\$10.218
Non-Summer Peak	per kWh	\$0.1141	\$0.1158	\$0.1249	\$0.1333	\$0.1434	\$0.1434	\$0.1434	\$0.1434
Non-Summer Off-Peak	per kWh	\$0.0924	\$0.0938	\$0.1033	\$0.1125	\$0.1235	\$0.1235	\$0.1235	\$0.1235
Non-Summer Off-Peak Saver	per kWh	\$0.0907	\$0.0921	\$0.0939	\$0.0869	\$0.0784	\$0.0784	\$0.0784	\$0.0784
Summer Peak	per kWh	\$0.2075	\$0.2106	\$0.2016	\$0.1918	\$0.1805	\$0.1805	\$0.1805	\$0.1805
Summer Off-Peak	per kWh	\$0.1326	\$0.1346	\$0.1277	\$0.1201	\$0.1113	\$0.1113	\$0.1113	\$0.1113

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

I. Applicability

This Rate Schedule CI-TOD3 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all agricultural, commercial and industrial (C&I) accounts with monthly maximum demand of at least 500 kW for three consecutive months, but not greater than 999 kW for three consecutive months during the preceding 12 months. Accounts will remain on this schedule unless monthly maximum demand falls below 500 kW for 12 consecutive months or exceeds 999 kW for three consecutive months. This schedule is also mandatory for accounts with contract capacity of at least 500 kW, but not greater than 999 kW. The demand for any month will be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_M, GUP_M and GUT_M) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-3, CITP-3, and CITT-3) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.160	\$3.220	\$3.268
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1138	\$0.1161	\$0.1178
Off-Peak <i>\$/kWh</i>	\$0.0900	\$0.0918	\$0.0932
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.160	n/a	\$3.268
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.710	n/a	\$7.998
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.2156	n/a	\$0.2233
On-Peak <i>\$/kWh</i>	\$0.1485	n/a	\$0.1538
Off-Peak <i>\$/kWh</i>	\$0.1144	n/a	\$0.1183
GUP_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.790	\$2.850	\$2.893
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1076	\$0.1097	\$0.1113
Off-Peak <i>\$/kWh</i>	\$0.0853	\$0.0870	\$0.0883
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.790	n/a	\$2.893
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$7.110	n/a	\$7.359
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.2053	n/a	\$0.2125
On-Peak <i>\$/kWh</i>	\$0.1432	n/a	\$0.1482
Off-Peak <i>\$/kWh</i>	\$0.1088	n/a	\$0.1126
GUT_M (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	\$322.70	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.290	\$2.340	\$2.375
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1037	\$0.1058	\$0.1074
Off-Peak <i>\$/kWh</i>	\$0.0835	\$0.0851	\$0.0864
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	n/a	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$2.290	n/a	\$2.375
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$0.000	n/a	\$0.000
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1994	n/a	\$0.2063
On-Peak <i>\$/kWh</i>	\$0.1341	n/a	\$0.1389
Off-Peak <i>\$/kWh</i>	\$0.1071	n/a	\$0.1109

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **CI-TOD3-2**

Effective: **September 17, 2021**

Edition: **September 17, 2021**

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

B. Restructured Commercial Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-3: C&I Secondary 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$278.60	\$282.80	\$781.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.610	\$3.664	\$4.152
Electricity Usage Charge			
Peak \$/kWh	\$0.1183	\$0.1201	\$0.1225
Off-Peak \$/kWh	\$0.0958	\$0.0972	\$0.0992
Off-Peak Saver \$/kWh	\$0.0919	\$0.0933	\$0.0906
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$278.60	\$282.80	\$781.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.610	\$3.664	\$4.152
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.070	\$9.206	\$9.732
Electricity Usage Charge			
Peak \$/kWh	\$0.2071	\$0.2102	\$0.2111
Off-Peak \$/kWh	\$0.1262	\$0.1281	\$0.1212
CITP-3: C&I Primary 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$287.15	\$291.45	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.020	\$3.065	\$3.127
Electricity Usage Charge			
Peak \$/kWh	\$0.1269	\$0.1288	\$0.1314
Off-Peak \$/kWh	\$0.1102	\$0.1119	\$0.1141
Off-Peak Saver \$/kWh	\$0.0702	\$0.0712	\$0.0727
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$287.15	\$291.45	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.020	\$3.065	\$3.127
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.870	\$10.018	\$10.218
Electricity Usage Charge			
Peak \$/kWh	\$0.2058	\$0.2089	\$0.2131
Off-Peak \$/kWh	\$0.1047	\$0.1063	\$0.1084
CITT-3: C&I Subtransmission 500-999 kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,195.45	\$1,213.40	\$1,237.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.310	\$3.360	\$3.427
Electricity Usage Charge			
Peak \$/kWh	\$0.1099	\$0.1115	\$0.1138
Off-Peak \$/kWh	\$0.0918	\$0.0932	\$0.0950
Off-Peak Saver \$/kWh	\$0.0597	\$0.0606	\$0.0618
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,195.45	\$1,213.40	\$1,237.65
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.310	\$3.360	\$3.427
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$9.620	\$9.764	\$9.960
Electricity Usage Charge			
Peak \$/kWh	\$0.1848	\$0.1876	\$0.1913
Off-Peak \$/kWh	\$0.0890	\$0.0903	\$0.0922

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **CI-TOD3-3**

Effective: **September 17, 2021**

Edition: **September 17, 2021**

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

The customer shall pay for additional equipment and software identified by SMUD meter specialists as necessary for load data collection and upload to the customer electronic system. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate will be determined by the voltage level at which service is provided according to the following:

1. *Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. *Primary Service Voltage*

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. *Subtransmission Service Voltage*

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. **Adjustment (charge per month varies)**

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. **Waiver Contract (charge per month is set for term of waiver)**

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

Excess KVAR x Waiver Rate

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Commercial Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service may be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD3

IX. Transition Schedule

Season and Charge Component	Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*	2025*
CITS-3: C&I Secondary 500-999 kW						
System Infrastructure Fixed Charge	per month	\$278.60	\$282.80	\$781.65	\$1,440.30	\$2,098.90
Site Infrastructure Charge	per kW	\$3.610	\$3.664	\$4.152	\$4.566	\$4.969
Summer Peak Demand Charge	per kW	\$9.070	\$9.206	\$9.732	\$10.073	\$10.415
Non-Summer Peak	per kWh	\$0.1183	\$0.1201	\$0.1225	\$0.1241	\$0.1261
Non-Summer Off-Peak	per kWh	\$0.0958	\$0.0972	\$0.0992	\$0.1017	\$0.1040
Non-Summer Off-Peak Saver	per kWh	\$0.0919	\$0.0933	\$0.0906	\$0.0788	\$0.0673
Summer Peak	per kWh	\$0.2071	\$0.2102	\$0.2111	\$0.2084	\$0.2058
Summer Off-Peak	per kWh	\$0.1262	\$0.1281	\$0.1212	\$0.1108	\$0.1003
CITP-3: C&I Primary 500-999 kW						
System Infrastructure Fixed Charge	per month	\$287.15	\$291.45	\$297.30	\$297.30	\$297.30
Site Infrastructure Charge	per kW	\$3.020	\$3.065	\$3.127	\$3.127	\$3.127
Summer Peak Demand Charge	per kW	\$9.870	\$10.018	\$10.218	\$10.218	\$10.218
Non-Summer Peak	per kWh	\$0.1269	\$0.1288	\$0.1314	\$0.1314	\$0.1314
Non-Summer Off-Peak	per kWh	\$0.1102	\$0.1119	\$0.1141	\$0.1141	\$0.1141
Non-Summer Off-Peak Saver	per kWh	\$0.0702	\$0.0712	\$0.0727	\$0.0727	\$0.0727
Summer Peak	per kWh	\$0.2058	\$0.2089	\$0.2131	\$0.2131	\$0.2131
Summer Off-Peak	per kWh	\$0.1047	\$0.1063	\$0.1084	\$0.1084	\$0.1084
CITT-3: C&I Subtransmission 500-999 kW						
System Infrastructure Fixed Charge	per month	\$1,195.45	\$1,213.40	\$1,237.65	\$1,237.65	\$1,237.65
Site Infrastructure Charge	per kW	\$3.310	\$3.360	\$3.427	\$3.427	\$3.427
Summer Peak Demand Charge	per kW	\$9.620	\$9.764	\$9.960	\$9.960	\$9.960
Non-Summer Peak	per kWh	\$0.1099	\$0.1115	\$0.1138	\$0.1138	\$0.1138
Non-Summer Off-Peak	per kWh	\$0.0918	\$0.0932	\$0.0950	\$0.0950	\$0.0950
Non-Summer Off-Peak Saver	per kWh	\$0.0597	\$0.0606	\$0.0618	\$0.0618	\$0.0618
Summer Peak	per kWh	\$0.1848	\$0.1876	\$0.1913	\$0.1913	\$0.1913
Summer Off-Peak	per kWh	\$0.0890	\$0.0903	\$0.0922	\$0.0921	\$0.0921

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

I. Applicability

This Rate Schedule CI-TOD4 applies to single- or three-phase service, delivered at standard voltages designated by SMUD as available at the customer's premises. This schedule is mandatory for all agricultural, commercial and industrial (C&I) accounts with monthly maximum demand of 1,000 kW or greater for three consecutive months during the preceding 12 months. Accounts will remain on this rate schedule unless monthly maximum demand falls below 1,000 kW for 12 consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month. This schedule is also mandatory for accounts with contract capacity of 1,000 kW or greater.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Transition to Restructured Commercial & Industrial Time-of-Day Rates

1. The Legacy commercial rates (GUS_L, GUP_L, GUT_L) will be closed to new customers October 1, 2021.
2. Existing customers on the Legacy commercial rates will gradually transition as determined by SMUD to the new restructured Commercial & Industrial Time-of-Day rates (CITS-4, CITP-4, and CITT-4) beginning the first full billing cycle in October 2021.
3. Once a customer has been transitioned to the new restructured Commercial & Industrial Time-of-Day rate, they cannot return to the closed Legacy rate(s).

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

III. Firm Service Rates

A. Legacy Rates (closed as of October 1, 2021)

	Effective as of January 1, 2021	Effective as of October 1, 2021	Effective as of March 1, 2022
GUS_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.450	\$4.540	\$4.608
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1194	\$0.1218	\$0.1236
Off-Peak <i>\$/kWh</i>	\$0.0946	\$0.0965	\$0.0979
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.450	n/a	\$4.608
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1860	n/a	\$0.1925
On-Peak <i>\$/kWh</i>	\$0.1484	n/a	\$0.1537
Off-Peak <i>\$/kWh</i>	\$0.1187	n/a	\$0.1229
GUP_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	\$121.85	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.270	\$4.350	\$4.415
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1136	\$0.1159	\$0.1176
Off-Peak <i>\$/kWh</i>	\$0.0885	\$0.0903	\$0.0917
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$119.45	n/a	\$123.70
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.270	n/a	\$4.415
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1533	n/a	\$0.1587
On-Peak <i>\$/kWh</i>	\$0.1395	n/a	\$0.1444
Off-Peak <i>\$/kWh</i>	\$0.1083	n/a	\$0.1122
GUT_L (closed October 1, 2021)			
Winter Season (January - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	\$322.70	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.400	\$3.460	\$3.512
Electricity Usage Charge			
On-Peak <i>\$/kWh</i>	\$0.1095	\$0.1117	\$0.1134
Off-Peak <i>\$/kWh</i>	\$0.0865	\$0.0882	\$0.0895
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$316.40	n/a	\$327.55
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.400	n/a	\$3.512
Electricity Usage Charge			
Super-Peak <i>\$/kWh</i>	\$0.1489	n/a	\$0.1541
On-Peak <i>\$/kWh</i>	\$0.1309	n/a	\$0.1355
Off-Peak <i>\$/kWh</i>	\$0.1068	n/a	\$0.1105

All customers on these rates will be transitioned to the new restructured rates as early as October 1, 2021.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

B. Restructured Commercial Industrial Time-of-Day Rates

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
CITS-4: C&I Secondary 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,181.05	\$1,198.75	\$2,319.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.630	\$4.699	\$4.876
Electricity Usage Charge			
Peak \$/kWh	\$0.1230	\$0.1248	\$0.1284
Off-Peak \$/kWh	\$0.0996	\$0.1011	\$0.1048
Off-Peak Saver \$/kWh	\$0.0939	\$0.0953	\$0.0833
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,181.05	\$1,198.75	\$2,319.35
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.630	\$4.699	\$4.876
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$3.350	\$3.400	\$6.937
Electricity Usage Charge			
Peak \$/kWh	\$0.1905	\$0.1934	\$0.2048
Off-Peak \$/kWh	\$0.1208	\$0.1226	\$0.1143
CITP-4: C&I Primary 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$204.50	\$207.55	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.300	\$4.365	\$4.400
Electricity Usage Charge			
Peak \$/kWh	\$0.1205	\$0.1223	\$0.1295
Off-Peak \$/kWh	\$0.0965	\$0.0979	\$0.1051
Off-Peak Saver \$/kWh	\$0.0832	\$0.0845	\$0.0679
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$204.50	\$207.55	\$297.30
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$4.300	\$4.365	\$4.400
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$4.930	\$5.004	\$10.218
Electricity Usage Charge			
Peak \$/kWh	\$0.1733	\$0.1759	\$0.1997
Off-Peak \$/kWh	\$0.1078	\$0.1094	\$0.1014
CITT-4: C&I Subtransmission 1000+ kW			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,081.85	\$1,098.10	\$1,178.85
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.410	\$3.461	\$3.479
Electricity Usage Charge			
Peak \$/kWh	\$0.1155	\$0.1173	\$0.1228
Off-Peak \$/kWh	\$0.0933	\$0.0947	\$0.0998
Off-Peak Saver \$/kWh	\$0.0854	\$0.0867	\$0.0774
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$1,081.85	\$1,098.10	\$1,178.85
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$3.410	\$3.461	\$3.479
Summer Peak Demand Charge <i>\$ per monthly Peak max kW</i>	\$3.210	\$3.258	\$6.636
Electricity Usage Charge			
Peak \$/kWh	\$0.1568	\$0.1592	\$0.1699
Off-Peak \$/kWh	\$0.1074	\$0.1090	\$0.1050

New restructured commercial rates beyond 2023 are effective as shown in Section IX. Transition Schedule.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

IV. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

V. Rate Option Menu

A. Energy Assistance Program Rate (EAPR) for Nonprofit Agencies. Refer to Rate Schedule EAPR.

B. Campus Billing. Refer to Rate Schedule CB.

C. Implementation of Energy Efficiency Program or Installation of New Solar/Photovoltaic or Storage Systems

Customers who implement a SMUD-sponsored Energy Efficiency program or who install a SMUD-approved solar/photovoltaic or storage system to offset their on-site energy usage may request, in writing, within 30 days of the project completion and commissioning, an adjustment to their twelve month maximum demand based on the anticipated reduction in kW from the Energy Efficiency Project Worksheet. The adjusted twelve month maximum demand is valid for 12 months or until it is exceeded by actual maximum demand.

D. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and, or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective January 1, 2021	\$7.350	\$5.810	\$2.940
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule, including, but not limited to, System Infrastructure Fixed Charges, Site Infrastructure Charges, Summer Super Peak Demand Charge, Summer Peak Demand Charges, and electricity usage charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

VI. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate shall be determined by the voltage level at which service is provided according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

C. Power Factor Adjustment or Waiver

1. Adjustment (charge per month varies)

Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer’s monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer’s monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective January 1, 2021	\$0.0120
Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

Excess KVAR x Waiver Rate

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective January 1, 2021	\$0.3193
Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

VII. Commercial Industrial Time-of-Day Billing Periods

A. Legacy Time-of-Use Billing Periods (closed as of October 1, 2021)

Winter October 1 -May 31	On-Peak	Weekdays between noon and 10:00 p.m.
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Super-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
	On-Peak	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
	Off-Peak	All other hours, including holidays

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

B. Restructured Time-of-Day Billing Periods

Non-Summer October 1 -May 31	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak Saver	Every day between 9:00 a.m. and 4:00 p.m., including holidays
	Off-Peak	All other hours, including holidays
Summer June 1 -September 30	Peak	Weekdays between 4:00 p.m. and 9:00 p.m., excluding holidays
	Off-Peak	All other hours, including holidays

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

Billing periods shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VIII. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is less than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is more than 34 days	
Price changes within billing period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Commercial & Industrial Time-of-Day Rate Schedule CI-TOD4

IX. Transition Schedule

Season and Charge Component		Unit	October 1, 2021	March 1, 2022	January 1, 2023	2024*
CITS-4: C&I Secondary 1000+ kW						
System Infrastructure Fixed Charge	per month		\$1,181.05	\$1,198.75	\$2,319.35	\$3,496.60
Site Infrastructure Charge	per kW		\$4.630	\$4.699	\$4.876	\$4.969
Summer Peak Demand Charge	per kW		\$3.350	\$3.400	\$6.937	\$10.415
Non-Summer Peak	per kWh		\$0.1230	\$0.1248	\$0.1284	\$0.1294
Non-Summer Off-Peak	per kWh		\$0.0996	\$0.1011	\$0.1048	\$0.1064
Non-Summer Off-Peak Saver	per kWh		\$0.0939	\$0.0953	\$0.0833	\$0.0686
Summer Peak	per kWh		\$0.1905	\$0.1934	\$0.2048	\$0.2124
Summer Off-Peak	per kWh		\$0.1208	\$0.1226	\$0.1143	\$0.1033
CITP-4: C&I Primary 1000+ kW						
System Infrastructure Fixed Charge	per month		\$204.50	\$207.55	\$297.30	\$297.30
Site Infrastructure Charge	per kW		\$4.300	\$4.365	\$4.400	\$4.400
Summer Peak Demand Charge	per kW		\$4.930	\$5.004	\$10.218	\$10.218
Non-Summer Peak	per kWh		\$0.1205	\$0.1223	\$0.1295	\$0.1295
Non-Summer Off-Peak	per kWh		\$0.0965	\$0.0979	\$0.1051	\$0.1051
Non-Summer Off-Peak Saver	per kWh		\$0.0832	\$0.0845	\$0.0679	\$0.0678
Summer Peak	per kWh		\$0.1733	\$0.1759	\$0.1997	\$0.1997
Summer Off-Peak	per kWh		\$0.1078	\$0.1094	\$0.1014	\$0.1014
CITT-4: C&I Subtransmission 1000+ kW						
System Infrastructure Fixed Charge	per month		\$1,081.85	\$1,098.10	\$1,178.85	\$1,237.65
Site Infrastructure Charge	per kW		\$3.410	\$3.461	\$3.479	\$3.427
Summer Peak Demand Charge	per kW		\$3.210	\$3.258	\$6.636	\$9.960
Non-Summer Peak	per kWh		\$0.1155	\$0.1173	\$0.1228	\$0.1260
Non-Summer Off-Peak	per kWh		\$0.0933	\$0.0947	\$0.0998	\$0.1030
Non-Summer Off-Peak Saver	per kWh		\$0.0854	\$0.0867	\$0.0774	\$0.0666
Summer Peak	per kWh		\$0.1568	\$0.1592	\$0.1699	\$0.1775
Summer Off-Peak	per kWh		\$0.1074	\$0.1090	\$0.1050	\$0.0987

*Subject to future rate increases. Effective dates as indicated in Section II.

**Restructured Time-of-Day periods apply as described in Section VII.

***Summer prices effective October 1, 2021 are for informational purposes only and are used as the baseline for 2022.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

I. Applicability

This Rate Schedule EAPR applies to customers receiving service under residential or Commercial & Industrial rates who meet specific eligibility requirements.

II. Eligibility for Residential Customers

Eligibility for the Energy Assistance Program (EAPR) is determined by the following:

- A. The total gross household income must conform to the Income Guidelines as specified on the application;
- B. The customer must not be claimed as a dependent on another person's income tax return; and
- C. The service address on the application must be the customer's primary residence.

III. Discount for Residential Customers

Eligible residential customers will receive a discount based on qualifying federal poverty level income guidelines beginning as early as the first full bill cycle in 2021. The EAPR discount will include two components:

1. A \$10 System Infrastructure Fixed Charge discount per month; and
2. An additional discount is applied as a 100% reduction in the electricity usage cost per kilowatt hour up to the maximum discount according to the following income guidelines:

Federal Poverty Level	2021 Maximum Electricity Usage Discount
0-50%	\$60
>50 to 100%	\$32
>100 to 150%	\$10
>150 to 200%	\$0

IV. Eligibility for Nonprofit Organizations

To be eligible for EAPR the nonprofit organization must meet the following requirements:

- A. The organization's qualifying site takes service directly from SMUD; and
- B. The organization meets the qualifications for a nonprofit public or private organization, as specified on the application; and
- C. The organization operates the qualifying site as residential unit(s) whose residents meet the EAPR income guidelines.
 1. The primary function of the site shall be to provide a home (sleeping quarters) for low-income residents who would otherwise meet the residential EAPR guidelines defining low-income if permanently residing in a residence.
 2. In support of the primary function that is provided by the nonprofit organization, associated facilities that provide daytime services for the homeless (such as personal hygiene facilities, laundry facilities, kitchen and/or dining facilities, etc.) may also qualify for the discount. At least 75 percent of the facility's square footage must be directly related to meeting these functions.

An energy survey of the residential unit(s) is recommended at the time of being placed on this program and implementation of recommended cost-effective energy efficiency measures is encouraged.

V. Discount for Nonprofit Organization

All eligible non-profit organization accounts on a residential rate will receive the maximum residential discount.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

Eligible commercial customers will receive discounts as follows:

- A. All eligible commercial customers will receive a discount of 15 percent of the Electricity Usage Charge (kWh), Maximum Demand Charge (kW), Site Infrastructure Charge (kW), Summer Super Peak Demand Charge (kW), and Summer Peak Demand Charge (kW) each billing period.
- B. The Commercial & Industrial rate schedule CI-TOD1 System Infrastructure Fixed Charge will receive a discount of 35 percent each billing period.
- C. The Commercial & Industrial rate schedules CI-TOD2, CI-TOD3, and CI-TOD4 System Infrastructure Fixed Charge will receive a 15 percent discount applied each billing period.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

- A. **Hydro Generation Adjustment (HGA).** Refer to Rate Schedule 1-HGA.

VII. Conditions of Service

A. Application

To qualify for EAPR, the customer must complete a SMUD application and submit requested supporting documents. Applications are processed by SMUD or SMUD's designated agent.

Residential applications are available at SMUD's website, www.smud.org, or by calling SMUD customer service at 1-888-742-7683.

Nonprofit organizations must provide a copy of a valid determination or ruling letter from the Internal Revenue Service attesting to their charitable nonprofit status. Nonprofit Organization applications are available by calling SMUD customer service at 1-888-742-7683.

B. Verification

Upon request, applicants shall provide proof, satisfactory to SMUD or its designated agent, that they meet the eligibility requirements. Failure to provide proof as requested will be considered just cause for denial to enroll in EAPR. It is the customer's responsibility to immediately notify SMUD or its designated agent when eligibility requirements change to the extent that the applicant no longer qualifies for this program. Applicants served under this program may be subject to annual review and/or verification. Any intent to defraud SMUD will result in rebilling of the applicant's bill and removal from EAPR. SMUD reserves the right to take appropriate legal action as warranted.

VIII. Billing

The effective date of EAPR will be the beginning of the billing period in which the request is approved. If participation is terminated, the effective termination date will be the beginning of the billing period in which the request is received or the cancellation date. The maximum electricity usage discount will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The discount may be reflected on the customer's bill with a rate-based identifier code or line item description. The monthly System Infrastructure Fixed Charge discount will be prorated for bill periods shorter than 27 days as shown in the table below.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

Economic Development Rate Schedule EDR

I. Applicability

This Rate Schedule EDR is available to qualifying commercial customers locating, expanding, or retaining business in SMUD's service territory with a maximum demand of at least 300 kW on a single meter that meet all eligible criteria.

II. Eligibility

- A. Eligible customers are those taking service under Rate Schedules CI-TOD2, CI-TOD3 or CI-TOD4.
- B. Third party verification by a leading Sacramento area economic development organization will validate the legitimacy of the attraction, retention or expansion effort. The following criteria may be considered in the decision process:
 1. Alternative locations under consideration (within and outside of California)
 2. Workforce requirements
 3. Other tax or cash incentives
 4. Logistical requirements
 5. Infrastructure or site improvement costs
 6. Timeline for creating new load and jobs

III. Pricing Structures

- A. Eligible customers have two options (either Option A or B) to receive a reduction of the System Infrastructure Fixed Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and electricity usage charges on their bill, based on the table below.

<i>Economic Development Discount</i>										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Option A	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%	4.0%	3.0%	2.0%	1.0%
Option B	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%

- B. Eligible customers locating in areas of high unemployment and poverty as determined by the Disadvantaged Community designation under the California Office of Environmental Health and Hazard Assessment have two options (either Option C or D) to receive a reduction of the System Infrastructure Fixed Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge and electricity usage charges on their bill, based on the table below.

<i>Disadvantaged Communities Economic Development Discount</i>										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Option C	8.0%	8.0%	8.0%	8.0%	8.0%	6.5%	5.0%	3.5%	2.0%	0.5%
Option D	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%

IV. Conditions of Service

- A. Customers must execute an Economic Development Rate (EDR) Option Agreement for ten years commencing on the agreement effective date.

**Economic Development
Rate Schedule EDR**

- B.** New customers must apply for the EDR option prior to commencement of service with SMUD. Temporary service is not eligible for the EDR option. Applicants will have 12 months from the agreement date to reach the maximum demand of at least 300 kW load requirement. The effective start date for the EDR for new customers is the first billing period after three consecutive months with a maximum demand of at least 300 kW.
- C.** Existing customers must apply for the EDR option prior to the installation of new load with only additional load qualifying for the EDR. Existing customers specify in the Economic Development Rate Option Agreement the date when the new load will be added. The effective start date of the EDR is the first billing period following the specified date of load addition.
- D.** Retention customers will require the execution of a certificate by a company executive and/or owner certifying that the company is exploring other locations and electricity costs are a factor in its decision to do business in a location. The certification requires review and verification by a senior executive of a leading Sacramento area economic development organization. Retention customers specify in the Economic Development Rate Option Agreement the date when the existing load will be retained with only the portion of load deemed likely to relocate or cease operations qualifying for the EDR. The effective start date is the first billing period with the EDR following the specified date of the retained load.

(End)

DRAFT
Renewable Energy Bill Credit
Rate Schedule RBC

I. Applicability

This Rate Schedule applies to residential master-metered customers who have an electrical generation facility on their premise that is fueled by a renewable fuel source. A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- photovoltaic
- wind
- biomass
- solar thermal
- geothermal
- fuel cells using renewable fuels
- small hydroelectric
- digester gas
- municipal solid waste conversion
- landfill gas
- ocean wave
- ocean thermal
- tidal current

Small hydroelectric generation facilities will not qualify for this Rate Schedule if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this Rate Schedule if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

II. Conditions of Service

A. General Eligibility Requirements

The following are requirements for eligibility under this Rate Schedule:

1. The generation facility must be located entirely on the customer's premise; and
2. The generation facility must operate in parallel with SMUD's distribution facilities at the secondary voltage level; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The generation facility's kilowatt hour generating capacity shall not exceed the electrical load's average maximum demand for the prior twelve (12) month period at the time of interconnection; and
5. The generation facility is located at a distinct single metering point separate from the electrical load; and
6. Both the electrical load and the generation facility are on the same distribution feeder; and
7. The generating capacity does not exceed a maximum of 1,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

B. Qualifying Accounts and Customer-of-Record Requirements

Any customer taking service under this Rate Schedule must have a generation meter to establish a generator account and an electrical load meter to establish a benefiting account.

¹. See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

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Renewable Energy Bill Credit
Rate Schedule RBC

Both accounts must be the same customer-of-record.

C. Generator Account

A generator account is the account that consists of a renewable electrical generation facility interconnected with SMUD behind a revenue grade meter. The generator account must not service any load other than what is necessary for the operation of the renewable electrical generation facility.

Any load used by the generation facility will apply to offset any generation produced by the generation facility. In the event there is an insufficient amount of load used by the generation facility to be offset by the generation, SMUD reserves the right to bill for the electricity used.

D. Benefiting Account

A benefiting account is an account that is interconnected with and takes service from SMUD behind a meter. A benefiting account cannot benefit from more than one generator account.

III. Renewable Energy

Electricity provided from the generator account to SMUD shall be priced at the applicable Feed-In Tariff price in accordance with the methodology set forth in the Feed-In Tariff for Distributed Generation Rate Schedule (FIT). The price will be posted on the SMUD website.

This price will not change in the event of changes in the customer-of-record on the account, the ownership of the generation facility, and/or ownership of the property. To take service under this Rate Schedule, the owner of the generation facility shall execute a contract with SMUD. The contract shall be offered for durations of either ten (10) or fifteen (15) years at the option of the customer. The customer must transfer all renewable energy attributes to SMUD associated with this generation facility during the term of the contract.

IV. Crediting of Renewable Energy

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days. Both the generation account and benefiting account will be placed on the same billing period.

- A.** All charges of the generator account and the benefiting account must be paid monthly. This includes, without limitation, the System Infrastructure Fixed Charge, Electricity Usage charges, Maximum Demand Charge, Summer Peak Demand Charge, Summer Super Peak Demand Charge, Site Infrastructure Charge, program fees, surcharges and taxes.
- B.** All of the electricity output from the generation facility will post on the benefiting account’s bill as a renewable energy bill credit.
- C.** Under no circumstances will the renewable energy bill credits exceed the amount of electricity usages charges billed within a month.

V. Metering

A. Metering Requirement for the Generator Account

The generator account must be metered using a revenue-grade interval meter capable of measuring the renewable electrical generation facility’s output in fifteen minute increments or smaller. The customer is responsible for all costs for the provisioning and installation of the meter.

In the event the generator account is found to have load that is not solely related to the renewable electrical generation facility, SMUD reserves the right to require the customer to install a bi-directional SMUD meter and a generation output meter. The customer will be responsible for installing a meter socket for the generation output meter and provide SMUD unrestricted access to both the bi-directional meter and the generation output meter. The customer is responsible for reimbursing SMUD for all expenses associated with this metering requirement.

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Renewable Energy Bill Credit
Rate Schedule RBC

B. Telemetry Requirement for the Generator Account

Customers operating under this schedule may, at SMUD's sole discretion, be required to pay for the installation of telemetry if telemetry is determined necessary as part of the interconnection review.

C. Metering Requirement for the Benefiting Account

The benefiting account must be metered in accordance with the applicable rate that would otherwise apply as if the benefiting account was not taking service under this Rate Schedule.

VI. Special Billing Conditions

A. Generator Account Subject to Charges

The generator account is subject to charges each billing period such as, but not limited to, Electricity Usage Charges, a System Infrastructure Fixed Charge, Maximum Demand Charges, Summer Peak Demand Charges, Summer Super Peak Demand Charges, and Site Infrastructure Charges, program fees, surcharges and taxes as identified in the generator account's applicable Rate Schedule.

B. Benefiting Account and Rate Treatment

Each benefiting account will remain on the otherwise applicable Rate Schedule for residential master-metered service.

C. Ineligible Rate Options

Customers taking service on this Rate Schedule are not eligible to take service on Rate Schedules NEM1 or SSR.

(End)

DRAFT
Temporary Service
Rule and Regulation 13

I. Conditions for Temporary Service

SMUD will furnish temporary service to operations of a speculative nature or questionable permanency if the applicant for temporary service:

1. Pays to SMUD, in advance or as SMUD may direct, the estimated cost to SMUD of installing and removing all facilities specifically required for such temporary service; and
2. Establishes credit pursuant to Rule and Regulation 6.

SMUD reserves the right to charge a temporary service customer for any additional construction work needed solely for the continuation of temporary service, or to refuse service if such service would, in SMUD's judgment, prove a hardship or hazard to it or its customers.

There shall be no connection of customer-owned generation facilities under this rule.

II. Refund of Temporary Charges

Within three years of the date when service was first delivered, service will be considered permanent and payments made in excess of delinquent meter and service charges shall be refunded without interest when a customer served under this rule has requested a refund of temporary charges, and has:

1. Installed sewer, water, and foundation; or
2. Operated the same or greater electrical load originally installed for a period of 36 consecutive months from the date when service was first delivered under this rule.

(End)

Rates, Rules and Regulations Effective in 2022

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Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

	<u>Effective Date</u>	<u>Sheet Number</u>	<u>Page Number</u>
Table of Contents.....	Sept 17, 2021	i	
Preliminary Statement	Sept 17, 2021	ii	
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AG Agricultural	Jan 1, 2022	AG-1-6	1
CHP Combined Heat & Power Distributed Generation	Mar 1, 2022	CHP-1-3	7
DWS Distribution Wheeling Service	Mar 1, 2022	DWS-1-2	10
EAPR Energy Assistance Program Rate.....	Jan 1, 2022	EAPR-1-2	12
GS-TDP General Service Temperature Dependent Pricing and Economic Retention	Mar 1, 2022	GS-TDP-1-4	14
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SLS Street Light Service	Mar 1, 2022	SLS-1-4	32
TC ILS Traffic Control – Intersection Lighting Service	Mar 1, 2022	TC ILS-1	36
TSS Traffic Signal Service	Mar 1, 2022	TSS-1	37

Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

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Agricultural Service
Rate Schedule AG

I. Applicability

This Rate Schedule AG applies to single- or three-phase nonresidential agricultural service, delivered at standard voltages designated by SMUD as available at the customer's premises. The electricity must be for pumping loads where a preponderance of the load is devoted to agricultural purposes such as farm lighting, feed choppers, milking machines, heating for incubators, brooders, and other farm uses; drainage pumping loads where a preponderance of the area drained is agricultural; and irrigation pumping loads for nonagricultural purposes where the entire loads, except for minor incidental uses, are devoted to such pumping.

This schedule is mandatory for agricultural accounts with monthly maximum demand that does not exceed 499 kW for three or more consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Firm Service Rate

A. Small Agricultural Service, Nondemand Rates – ASN

This rate applies to agricultural accounts having a monthly maximum demand of 30 kW or less. If the account does not have a meter that registers demand, and monthly usage is at least 12,000 kWh for three consecutive months, a demand meter will be installed. Whenever monthly maximum demand exceeds 30 kW for three consecutive months, the customer will be billed on the applicable demand rate. To return to the nondemand rate, the account's monthly maximum demand must fall below 31 kW and usage must be below 12,000 kWh for 12 consecutive months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
ASN			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$12.40	\$12.60	\$12.85
Electricity Usage Charge			
All day <i>\$/kWh</i>	\$0.1378	\$0.1398	\$0.1428
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$12.60	\$12.85
Electricity Usage Charge	n/a		
All day <i>\$/kWh</i>		\$0.1534	\$0.1564

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Agricultural Service
Rate Schedule AG

B. Large Agricultural Service, Demand Rates – ASD

This rate applies to agricultural accounts having a monthly maximum demand greater than 30 kW but less than 499 kW for three consecutive months. The demand for any month will be the maximum 15-minute kW delivery during the month. The customer will be billed on the demand-metered rate until the demand falls below 31 kW and energy is less than 12,000 kWh for 12 consecutive months before being returned to the ASN Rate.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
ASD			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$28.80	\$29.25	\$29.80
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>			
First 30kW	No Charge	No Charge	No Charge
Additional kW per month	\$2.850	\$2.893	\$2.951
Electricity Usage Charge			
Base Usage <i>8,750 kWh per month</i>	\$0.1526	\$0.1549	\$0.1580
Base Usage Plus <i>kWh over 8,750 per month</i>	\$0.1198	\$0.1216	\$0.1240
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$29.25	\$29.80
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>			
First 30kW	n/a	No Charge	No Charge
Additional kW per month	n/a	\$2.893	\$2.951
Electricity Usage Charge			
Base Usage <i>8,750 kWh per month</i>	n/a	\$0.1484	\$0.1514
Base Usage Plus <i>kWh over 8,750 per month</i>	n/a	\$0.1074	\$0.1095

C. Small Agricultural Optional Time-of-Day – AON

This optional rate is for small agricultural accounts having a monthly maximum demand of 30 kW or less. Customers transferring to the small agricultural Time-of-Day Rate must remain on the rate for a minimum of four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
AON			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$16.65	\$16.90	\$17.25
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	\$0.1585	\$0.1609	\$0.1641
Off-peak <i>\$/kWh</i>	\$0.1351	\$0.1371	\$0.1399
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$16.90	\$17.25
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	n/a	\$0.2332	\$0.2379
Off-peak <i>\$/kWh</i>	n/a	\$0.1254	\$0.1279

DRAFT
Agricultural Service
Rate Schedule AG

D. Large Agricultural Optional Time-of-Day – AOD

This optional rate is for large agricultural accounts with demand greater than 30 kW and less than 499 kW. Customers transferring to the agricultural Time-of-Day Rate must remain on the rate for a minimum of four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
AOD			
Winter Season (November - April)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$100.25	\$101.75	\$103.80
Maximum Demand Charge <i>\$ per monthly max kW</i>	\$2.840	\$2.883	\$2.940
Electricity Usage Charge			
On-peak <i>\$/kWh</i>	\$0.1578	\$0.1602	\$0.1634
Off-peak <i>\$/kWh</i>	\$0.1340	\$0.1360	\$0.1388
Summer Season (May - October)			
System Infrastructure Fixed Charge <i>per month per meter</i>		\$101.75	\$103.80
Maximum Demand Charge <i>\$ per monthly max kW</i>		\$4.030	\$4.110
Electricity Usage Charge			
On-peak <i>\$/kWh</i>		\$0.2478	\$0.2528
Off-peak <i>\$/kWh</i>		\$0.1322	\$0.1348

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges:

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu

A. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) are connected to SMUD's electrical system; and
3. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Service Charge by Voltage Level (\$/kW of Contract Capacity per month)	Secondary	Primary	Subtransmission
Effective October 1, 2021	\$7.500	\$5.920	\$2.990
Effective March 1, 2022	\$7.562	\$6.009	\$3.035
Effective January 1, 2023	\$7.713	\$6.129	\$3.096

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In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under this rate schedule. These charges include System Infrastructure Fixed Charges and Site Infrastructure Charges, as well as Electricity Usage and Maximum Demand Charges for SMUD-provided power.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

B. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

C. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

D. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

V. Conditions of Service

A. Type of Electric Service

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition

The following defines the three voltage classes available. The rate shall be determined by the voltage level at which service is taken according to the following:

1. Secondary Service Voltage

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as "Primary" or "Subtransmission."

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer's monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer's monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

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C. Power Factor Adjustment

1. Adjustment (charge per month varies)

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective October 1, 2021	\$0.0123
Effective March 1, 2022	\$0.0125
Effective January 1, 2023	\$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective October 1, 2021	\$0.3257
Effective March 1, 2022	\$0.3306
Effective January 1, 2023	\$0.3372

D. Time-of-Day Billing Periods

Winter season is from November 1 through April 30. Summer season is from May 1 through October 31.

Winter On-Peak	Weekdays between 7:00 a.m. and 10:00 a.m. and 5:00 p.m. and 8:00 p.m.
Summer On-Peak	Weekdays between 2:00 p.m. and 8:00 p.m.
Off-Peak	All other hours, including holidays shown below.

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Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

VI. Billing

A. Meter Data

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The Electricity Usage allowances, System Infrastructure Fixed Charge, Maximum Demand Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

I. Applicability

This Rate Schedule CHP is optional for customers who wish to sell all excess generation to SMUD from an eligible Combined Heat and Power (CHP) generation facility with a capacity of 3 MW or less operating in parallel with SMUD's distribution system, or with a capacity of 20 MW or less operating in parallel with SMUD's subtransmission system. The facility must continuously meet the qualifications in Section IV General Conditions. This schedule applies solely to the excess generation delivered to SMUD.

II. Pricing Structure

Under this schedule, SMUD will pay the customer the applicable price for metered energy delivered by the eligible CHP facility during the time periods specified in this schedule.

A. Excess Generation Prices

The CHP excess generation prices will be posted at SMUD's website, www.smud.org. Prices will be differentiated by delivery voltage, season and time-of-day. CHP excess generation prices will be reset each January 1 and apply for that calendar year to all CHP excess generation delivered to SMUD, regardless of the date of the CHP commissioning and interconnection to SMUD's system, or the effective date of the Power Purchase Agreement (PPA) and Interconnection Agreement.

The CHP excess generation prices reflect SMUD's underlying avoided costs for procurement and delivery of comparable power during the specified terms and time periods. The avoided cost is made up of the following components:

- Market Energy Price
- Losses by voltage level
- Transmission and Distribution

SMUD will typically pay for CHP excess generation based on the voltage at the point of delivery to the SMUD system. However, to the extent that SMUD must step up the excess generation to a higher voltage level in order to serve its customers, the pricing for the excess CHP generation will be based on the higher voltage level.

B. Time-of-Delivery Periods

Season	Months	Super Peak	On Peak	Off Peak
Summer	June - Sept	2:00 to 8:00 p.m. Mon – Sat except holidays	6:00 a.m. to 2:00 p.m. & 8:00 p.m. to 10:00 p.m. Mon - Sat except holidays	All other hours
Fall & Winter	Oct - Feb			
Spring	Mar - May			

Off-peak pricing shall apply during the following holidays:

Holiday	Month	Date
New Year's Day	January	1
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

III. Charges

A. Reserved Capacity Charge

The customer shall pay a monthly Reserved Capacity Charge to compensate SMUD for standing ready to supply supplemental service, backup electricity, and other services/electricity during interruptions in the CHP facility's operation. The Reserved Capacity Charge is based on the greater of the following:

- The customer's Maximum Anticipated Demand or actual monthly demand, if higher, multiplied by the Reserved Capacity Rate per kW shown below; or
- The Generator Installed Capacity of the CHP facility multiplied by the Reserved Capacity Rate per kW shown below.

Reserved Capacity Rate <i>per kW</i>	Secondary	Primary	Subtransmission
Effective March 1, 2022	\$7.278	\$7.278	\$6.993
Effective January 1, 2023	\$7.423	\$7.423	\$7.133

1. Maximum Anticipated Demand

The initial maximum anticipated demand will be the customer's maximum monthly demand in the prior 18 months at the time the PPA is executed.

2. Generator Installed Capacity

The Generator Installed Capacity of the facility will be set forth in the PPA.

3. Reset of Reserved Capacity Basis

If, at any time, the customer's actual monthly demand exceeds the Generator Installed Capacity of the CHP facility, the demand used to calculate the Reserved Capacity Charge will be reset to use the newly established demand as the basis for the charge.

B. Data Communications Charges

The customer shall be responsible for procuring and maintaining any communication link required by SMUD for retrieving meter data. Ongoing data communication charges paid by SMUD on behalf of the customer will be passed through to the customer and will appear on the customer's monthly SMUD bill.

C. Other Charges

SMUD will continue to bill for all appropriate charges under the applicable rate schedule for SMUD supplied power to the customer. These charges include without limitation System Infrastructure Fixed Charge, Electricity Usage charges, surcharges, and taxes. Site Infrastructure Charges and Summer Peak Demand Charges are applicable if the sum of these two charges is greater than the Reserved Capacity Charge. Each month, the Reserved Capacity Charge will be compared to the sum of the Site Infrastructure Charge plus any Summer Peak Demand Charge. On the monthly bill, the customer will be charged the greater of the two calculations, but not both. The monthly bill will also include applicable metering and data communications charges.

Combined Heat and Power (CHP) Distributed Generation Rate Schedule CHP

IV. Conditions of Service

A. Eligible CHP Facility

To be eligible for this schedule, the CHP facility shall maintain without interruption certification by the California Energy Commission (CEC) as outlined in the CEC's "Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act - Public Utilities Code, Section 2840 *Et Seq.*" CHP systems placed into operation before January 1, 2008 are not eligible for this schedule.

B. Territory

The CHP facility must be located entirely within SMUD's service territory.

C. Required Contract

An eligible CHP facility operating under this schedule shall execute a Power Purchase Agreement (PPA) with SMUD. The PPA shall be offered for contract durations of up to 10 years at the option of the customer.

D. Participation in Other SMUD Programs

An eligible CHP facility operating under this schedule may not also obtain benefits for the same facility from any of the following:

1. A separate contract with SMUD for deliveries from the same facility; or
2. Incentives from SMUD under customer programs implemented in compliance with SB1 requirements or similar program; or
3. The net metering option for energy deliveries from the same facility.

E. Electrical Interconnection

An eligible CHP facility under this schedule shall be interconnected within SMUD's service territory and shall be required to comply with SMUD's Rule and Regulation 21 process for interconnection and execute an Interconnection Agreement with SMUD. Facilities not meeting the Rule and Regulation 21 requirements will **not** be eligible for service. Any costs for system upgrades and facilities required for interconnection are the responsibility of the customer.

F. Metering Requirements

The eligible CHP facility operating under this schedule shall comply with all applicable rules in installing, at the customer's expense, a bi-directional time-of-use meter appropriate for excess sale agreements, that can be read daily by electronic means acceptable to SMUD. SMUD will pay for and install a gross output meter to measure the generator output and provide for SMUD data requirements. The customer shall provide and pay for the meter socket and cabinet, and all required current transformers and potential transformers.

G. Energy and Green Attributes

The customer shall, in accordance with the terms and conditions of the PPA, provide and convey to SMUD excess energy produced by the eligible CHP facility net of all station use and any and all site host load. Such conveyance shall include all related Green Attributes.

(End)

Distribution Wheeling Service Rate Schedule DWS

I. Applicability

This Rate Schedule DWS is optional for customers requesting Distribution Wheeling Service. SMUD may, at its sole discretion, provide Distribution Wheeling Service to Independent Power Producers and Cogenerators, also referred to as Merchant Generators, within SMUD territory, who establish a need for this service. Wheeling service requests will be evaluated on a case by case basis and may be limited by availability of distribution system capacity. This rate has been developed for wholesale power transactions and SMUD will not wheel non-SMUD power to its retail customers under this rate.

This Rate Schedule DWS is available to entities owning generating facilities that meet the following conditions:

- The entity's generating facility is connected to SMUD's distribution system; and
- The entity has a power purchase (offtake) agreement for the output of the generating facility with an entity other than SMUD; and
- Power delivery under the power purchase agreement occurs at a location outside of the SMUD system.

Under this service, the power from the associated generating facility will be wheeled (transferred) across SMUD's distribution system from the point of interconnection to SMUD's distribution system (Interconnection Point) to SMUD's bulk power system. Entities taking service under this rate schedule will also be required to take Transmission Wheeling Service from SMUD under the SMUD Open Access Transmission Tariff (OATT).

Service under this schedule is on a first-come, first-served basis and is available unless the usage of these wheeling facilities would be detrimental to SMUD. This schedule is available for interconnection of the qualified generating facility to the SMUD distribution system, wherever that may occur within the SMUD service territory.

II. Rates

Distribution Wheeling Charge

Effective March 1, 2022	\$10.934	\$1.703
Effective January 1, 2023	\$11.152	\$1.737

* includes all path charges to SMUD's bulk power system

III. Conditions of Service

A. Application for Service

Any entity requesting service under this rate schedule must submit an application for Distribution Wheeling Service. Application for such service is available at the SMUD website, www.smud.org.

B. Required Service Contract

The entity taking wheeling service under the rate schedule shall execute a Distribution Wheeling Agreement (DWA) in accordance with SMUD Policy and Procedure 8-05.

C. Reservation Deposit

The entity requesting service under this rate schedule will be required to submit a deposit equal to one month of service under this rate. The deposit will be refundable up until the time that the entity commits to service by execution of the DWA. Once the DWA is executed, the reservation deposit becomes a nonrefundable payment for the first month of service under the rate schedule.

D. Term

Applicant must specify, at the time of application, the start date for the requested service. Applicant must also specify the duration that is requested for service. SMUD will accept applications for service up to 20 years.

E. Application Under SMUD'S OATT

Applicants must also make application for Transmission Service under SMUD's Open Access Transmission Tariff.

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Distribution Wheeling Service
Rate Schedule DWS

F. Definitions

The following definitions apply to this schedule:

1. Applicant: The entity requesting service under this rate schedule.
2. Distribution Wheeling: The transfer of Merchant Generator power at 12 kV, 21 kV, or 69 kV for delivery to a third party outside SMUD service territory.

G. Electrical Interconnection

Applicant must also make a request for interconnection that complies with SMUD's Rule and Regulation 21 process for interconnection and must meet the requirements of Rule and Regulation 21, which include executing an Interconnection Agreement with SMUD. Any resources *not* meeting the Rule and Regulation 21 requirements will not be eligible for service under this schedule.

H. Metering Requirements

Distributed generation resources receiving service under this schedule shall comply with all applicable rules in installing metering equipment appropriate for full output monitoring agreements, and which can be read daily by electronic means acceptable to SMUD. The customer shall be responsible for procuring and maintaining any communication link required by SMUD for retrieving meter data.

IV. Line Losses

Merchant Generators taking service under this rate schedule will be assessed a line loss factor. Line losses will be applied as the electricity transitions from one voltage level to another. The line losses by voltage level are as follows:

<u>Voltage Level</u>	<u>Loss Factor</u>
12/21kV	4.06%
69kV	1.53%

SMUD reserves the right to update the line loss factor annually on January 1.

Line losses will be applied to the amount of generated electricity that is measured at the point of interconnection between the Merchant Generator's facility and SMUD's electrical system.

(End)

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

I. Applicability

This Rate Schedule EAPR applies to customers receiving service under residential or Commercial & Industrial rates who meet specific eligibility requirements.

II. Eligibility for Residential Customers

Eligibility for the Energy Assistance Program (EAPR) is determined by the following:

- A. The total gross household income must conform to the Income Guidelines as specified on the application;
- B. The customer must not be claimed as a dependent on another person's income tax return; and
- C. The service address on the application must be the customer's primary residence.

III. Discount for Residential Customers

Eligible residential customers will receive a discount based on qualifying federal poverty level income guidelines. The EAPR discount will include two components:

- 1. A \$10 System Infrastructure Fixed Charge discount per month; and
- 2. An additional discount is applied as a 100% reduction in the electricity usage cost per kilowatt hour up to the maximum discount according to the following income guidelines:

Federal Poverty Level	Maximum Electricity Usage Discount
0-50%	\$60
>50 to 100%	\$32
>100 to 150%	\$10
>150 to 200%	\$0

IV. Eligibility for Nonprofit Organizations

To be eligible for EAPR the nonprofit organization must meet the following requirements:

- A. The organization's qualifying site takes service directly from SMUD; and
- B. The organization meets the qualifications for a nonprofit public or private organization, as specified on the application; and
- C. The organization operates the qualifying site as residential unit(s) whose residents meet the EAPR income guidelines.
 - 1. The primary function of the site shall be to provide a home (sleeping quarters) for low-income residents who would otherwise meet the residential EAPR guidelines defining low-income if permanently residing in a residence.
 - 2. In support of the primary function that is provided by the nonprofit organization, associated facilities that provide daytime services for the homeless (such as personal hygiene facilities, laundry facilities, kitchen and/or dining facilities, etc.) may also qualify for the discount. At least 75 percent of the facility's square footage must be directly related to meeting these functions.

An energy survey of the residential unit(s) is recommended at the time of being placed on this program and implementation of recommended cost-effective energy efficiency measures is encouraged.

V. Discount for Nonprofit Organization

All eligible non-profit organization accounts on a residential rate will receive the maximum residential discount.

Residential and Commercial & Industrial Energy Assistance Program Rate Schedule EAPR

Eligible commercial customers will receive discounts as follows:

- A. All eligible commercial customers will receive a discount of 15 percent of the Electricity Usage Charge (kWh), Maximum Demand Charge (kW), Site Infrastructure Charge (kW), Summer Peak Demand Charge (kW), and Summer Super Peak Demand Charge (kW) each billing period.
- B. The Commercial & Industrial rate schedule CI-TOD1 System Infrastructure Fixed Charge will receive a discount of 35 percent each billing period.
- C. The Commercial & Industrial rate schedules CI-TOD2, CI-TOD3 and CI-TOD4 System Infrastructure Fixed Charge will receive a 15 percent discount applied each billing period.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

- A. **Hydro Generation Adjustment (HGA).** Refer to Rate Schedule HGA.

VII. Conditions of Service

A. Application

To qualify for EAPR, the customer must complete a SMUD application and submit requested supporting documents. Applications are processed by SMUD or SMUD's designated agent.

Residential applications are available at SMUD's website, www.smud.org, or by calling SMUD customer service at 1-888-742-7683.

Nonprofit organizations must provide a copy of a valid determination or ruling letter from the Internal Revenue Service attesting to their charitable nonprofit status. Nonprofit Organization applications are available by calling SMUD customer service at 1-888-742-7683.

B. Verification

Upon request, applicants shall provide proof, satisfactory to SMUD or its designated agent, that they meet the eligibility requirements. Failure to provide proof as requested will be considered just cause for denial to enroll in EAPR. It is the customer's responsibility to immediately notify SMUD or its designated agent when eligibility requirements change to the extent that the applicant no longer qualifies for this program. Applicants served under this program may be subject to annual review and/or verification. Any intent to defraud SMUD will result in rebilling of the applicant's bill and removal from EAPR. SMUD reserves the right to take appropriate legal action as warranted.

VIII. Billing

The effective date of EAPR will be the beginning of the billing period in which the request is approved. If participation is terminated, the effective termination date will be the beginning of the billing period in which the request is received or the cancellation date. The maximum electricity usage discount will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The discount may be reflected on the customer's bill with a rate-based identifier code or line item description. The monthly System Infrastructure Fixed Charge discount will be prorated for bill periods shorter than 27 days as shown in the table below.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

**General Service
Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)**

I. Applicability

This Rate Schedule GS-TDP applies to single- or three-phase service, delivered at the subtransmission voltage level. The rate charged the customer shall vary depending on the maximum forecasted temperature during the summer season (June through September). SMUD is utilizing temperature-dependent pricing as an additional rate option for economic retention.

This rate schedule was closed to new participants effective January 1, 1998.

To be eligible for this schedule, customers must have met the following requirements:

1. Certify to SMUD that serving their load has become competitive as shown through evidence of viable competitive energy sources from relocation, self-generation, cogeneration, etc.;
2. Verify that electricity costs are at least 10 percent of their variable production costs; and
3. Agree to remain a full-requirements SMUD customer for a minimum period of five years. If the customer chooses to bypass SMUD before the five year period has expired, the customer shall reimburse SMUD for all cumulative savings received under the temperature-dependent pricing rate compared to the standard rate. The customer may elect to terminate SMUD service after four years, with a one-year advance notification, without penalty.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Firm Service Rate

	Effective as of March 1, 2022	Effective as of January 1, 2023
GS-TDP		
Winter Season (January - May)		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$327.55	\$334.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$0.639	\$0.652
Electricity Usage Charge		
On-peak <i>\$/kWh</i>	\$0.1134	\$0.1156
Off-peak <i>\$/kWh</i>	\$0.0810	\$0.0826
Summer Season (June - September)		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$327.55	\$334.10
Site Infrastructure Charge <i>per 12 months max kW or contract capacity</i>	\$0.639	\$0.652
TDP Summer Super-Peak Demand Charge <i>(\$/kW)</i>		
Per kW of maximum demand during Super-Peak Period per day if forecasted daily maximum temperature (T) for the following day is:		
"Heat Storm" if $T \geq 100^\circ$ for 2 or more consecutive days; or	\$6.577	\$6.709
"Extremely Hot" if $T \geq 100^\circ$ for a single day; or	\$6.181	\$6.305
"Very Hot" if $100^\circ > T > 95^\circ$ for a single day; or	\$1.147	\$1.170
"Mild to Hot" if $95^\circ \geq T$	No Charge	No Charge
Electricity Usage Charge		
Super-peak <i>\$/kWh</i>	\$0.1541	\$0.1572
On-peak <i>\$/kWh</i>	\$0.1355	\$0.1382
Off-peak <i>\$/kWh</i>	\$0.1019	\$0.1039

The TDP Summer Super Peak Maximum Demand Charge varies depending on the forecasted maximum temperature, based on a mutually agreed upon weather forecast source for the Sacramento area, for the following day.

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)****Minimum Demand Charge Day**

A “Minimum Demand Charge Day” may be declared on days when the forecast maximum daily temperature is greater than 95°F and less than 50 percent of SMUD’s available peaking resources are being utilized. On a “Minimum Demand Charge Day” there is no charge for super-peak TDP maximum demand.

Notification of Minimum Demand Charge Day

It is the responsibility of the customer to communicate with SMUD to determine whether the SMUD system operator has declared a “Minimum Demand Charge Day.” SMUD reserves the right to cancel a “Minimum Demand Charge Day” if necessary. Any such update will be provided to the customer no later than one hour prior to application of the TDP super-peak maximum demand charge.

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu**A. SMUD Renewable Energy Option**

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org

B. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD’s website, www.smud.org.

V. Conditions of Service**A. Type of Electric Service**

SMUD will provide customers on this rate schedule standard, firm service consisting of a continuous and sufficient supply of electricity.

B. Service Voltage Definition*1. Secondary Service Voltage*

This service class provides power at voltage levels below 12 kilo-Volts (kV), or at a level not otherwise defined as “Primary” or “Subtransmission.”

2. Primary Service Voltage

This service class provides power at a voltage level of 12 kV or 21 kV. To be eligible for Primary Service Voltage, the customer’s monthly demand must exceed 299 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

3. Subtransmission Service Voltage

This subtransmission service class provides power at a voltage level of 69 kV or as otherwise defined by SMUD. To be eligible for voltage service at this level, the customer’s monthly demand must exceed 499 kW, the voltage must be available in the area being served, and SMUD must approve the arrangement for power provision.

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (Closed to new customers)****C. Power Factor Adjustment or Waiver****1. Adjustment (charge per month varies)**

Accounts on a demand rate may be subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 95 percent

Power Factor Adjustment Rate

Effective March 1, 2022 \$0.0125

Effective January 1, 2023 \$0.0127

2. Waiver Contract (charge per month is set for the term of the waiver)

Customers may apply for a power factor waiver contract that compensates SMUD for the power factor correction for the portion that is covered under the contract. The power factor waiver is not available to customers taking service at the subtransmission service voltage level. The waiver amount per month is calculated:

$$\text{Excess KVAR} \times \text{Waiver Rate}$$

Excess KVAR: Maximum 12-month KVAR in excess of 32.868 percent of kW

Waiver Rate per excess KVAR

Effective March 1, 2022 \$0.3306

Effective January 1, 2023 \$0.3372

D. Large General Service Time-of-Use Billing Periods

Winter On-Peak: October 1 - May 31	Weekdays between noon and 10:00 p.m.
Summer On-Peak: June 1 - September 30	Weekdays between noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
Summer Super-Peak: June 1 - September 30	Weekdays between 2:00 p.m. and 8:00 p.m.
Off-Peak	All other hours, including holidays shown below.

Off-peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

General Service

**Temperature-Dependent Pricing/Economic Retention
Rate Schedule GS-TDP (*Closed to new customers*)**

VI. Billing**A. Meter Data**

Meter data for service rendered in accordance with this rate will not be combined for billing purposes unless SMUD determines it is necessary or convenient to do so.

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

C. Contract Capacity

Use of Contract Capacity for billing is at SMUD's sole discretion. Refer to Rule and Regulation 1 and Rule and Regulation 6.

D. Discontinuance of Service

Any customer resuming service at the same premises within 12 months after discontinuing service will be required to pay the System Infrastructure Fixed Charges and Site Infrastructure Charges that would have been billed if service had not been discontinued, except when service has been disconnected. The System Infrastructure Fixed Charge and Site Infrastructure Charge will be waived during each of those months. Retroactive billing shall be at SMUD's sole discretion.

(End)

**Hydro Generation Adjustment
Rate Schedule HGA****I. Applicability**

This Rate Schedule HGA applies to all customers receiving retail electric service from SMUD. Annually, SMUD will calculate how the yearly variation of precipitation affects hydro generation from the Upper American River Project (UARP) and impacts the SMUD budget.

II. Conditions

- A. SMUD estimates that each inch of precipitation results in 30,000 megawatt hours (MWh) of generation.
- B. The HGA precipitation period begins April 1 of the previous year and ends on March 31 of the current year (Water Year).
- C. The actual inches of precipitation (AP) for each period shall be measured at the National Weather Service Pacific House Cooperative Observer measuring station or suitable replacement.
- D. The AP will be compared to the 50-year median (midpoint) inches of precipitation (MP) measured at Pacific House.
- E. The price of power delivered into the area designated as North Path 15 (NP15) will be used to determine the dollar impact of any excess or shortfall of energy. If NP15 is no longer available, then a suitable replacement will be used.
- F. The AP will be capped at a maximum of 80 inches per Water Year to accommodate for spill.

III. Budget Impact Determination

The following calculations will be used to determine SMUD's budget impact (BI) from precipitation variances:

A. Precipitation Variance

$$\text{Inches of Precipitation Variance } (\pm \text{IPV}) = \text{MP} - \text{AP}$$

The variance of precipitation equals the difference between the 50-year median and the actual inches of precipitation.

B. Generation Conversion

$$\pm \text{IPV} \quad \times \quad 30,000 \text{ MWh/inch} \quad = \quad \pm \text{MWh}$$

The variance of hydro generation, in megawatt hours, equals the inches of precipitation variance x 30,000 MWh/inch.

C. Calculation of Budget Effects

The market cost of energy is the simple average of the actual first quarter monthly NP15 prices as of April 1 and the second, third and fourth quarters monthly forecast NP15 prices. If NP15 is no longer available, then a suitable replacement will be used.

$$\pm \text{MWh} \quad \times \quad \text{market cost of energy } (\$/\text{MWh}) \quad = \quad \pm \text{budget impact } (\$)$$

IV. Hydro Rate Stabilization Fund

The BI will first be compared to the Hydro Rate Stabilization Fund (HRSF). In Water Years with above median precipitation, funds shall be deposited to the HRSF from Operating Revenues until the HRSF reaches a maximum of 6% of budgeted annual gross retail revenue, at which time subsequent excesses may be returned to the customer through the Hydro Generation Adjustment (HGA). In Water Years with below median precipitation, funds will be withdrawn from the HRSF and applied to Operating Revenues until the HRSF balance reaches zero, at which time the HGA will be levied as a surcharge on electricity usage.

V. Budget Impact Limitations

The BI will not exceed ± 4 percent of budgeted annual gross retail revenue.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. ____ adopted _____

Sheet No. **HGA-1**

Effective: **January 1, 2022**

Edition: **January 1, 2022**

DRAFT
**Hydro Generation Adjustment
Rate Schedule HGA**

VI. Rate Charges

The HGA deposits into or transfers out of the Hydro Rate Stabilization Fund will be calculated as follows:

$$\text{HRSF} - \text{BI} = \text{Calculated HRSF}$$

- A.** If Calculated HRSF is < 0

The Accountant will transfer the remaining balance of the HRSF to Operating Revenues and the HGA will be set at:

$$- \frac{\text{Calculated HRSF}}{\text{Budgeted annual retail kWh sales}} = \text{HGA}$$

- B.** If Calculated HRSF is ≥ 0 and $\leq 6 \text{ percent of budgeted annual gross retail revenue}$:

The Accountant will transfer the positive BI out of the HRSF and into Operating Revenues and transfer the negative BI into the HRSF from Operating Revenues.

- C.** If the Calculated HRSF is $> 6 \text{ percent of budgeted annual gross retail revenue}$:

The Accountant will transfer the negative BI into the HRSF from Operating Revenues up to 6 percent of budgeted annual gross retail revenue. The Board may authorize the HGA or direct the funds for another purpose. At the Board's direction, the HGA will be set at:

$$- \frac{(\text{Calculated HRSF} - 6\% \text{ of budgeted annual gross retail revenue})}{\text{Budgeted annual retail kWh sales}} = \text{HGA}$$

VII. Application

The HGA became effective July 1, 2008. The HGA is recalculated for each Water Year and will be applied to the rate schedules May 1 until April 30 of the following year.

(End)

DRAFT
Outdoor Night Lighting Service
Rate Schedule NLGT

I. Applicability

This Rate Schedule NLGT applies to SMUD-owned and maintained outdoor overhead lighting service where Street Lighting Service Rate Schedule SLS does not apply. Service furnished under this schedule may be discontinued at any location where SMUD's overhead distribution facilities are relocated or converted to underground distribution facilities.

Lamps shall be supported on SMUD-owned poles that are used to carry distribution system circuits used for other SMUD purposes and shall be at locations approved by SMUD.

II. Rate

	Effective as of March 1, 2022	Effective as of January 1, 2023
NLGT		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0309

There will be a separate monthly charge for installation and maintenance of each fixture (including lamps, refractors, ballasts, photocells and other typical support equipment). These charges are based upon the installation of street lighting fixtures of a design specified by SMUD and mounted by means of varying length brackets affixed to existing wood poles that are used to carry distribution system circuits.

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Lamp Servicing and Relocations

- A. Upon receipt of notice from the customer that light fails to operate as scheduled, SMUD will, within a reasonable period of time, make the necessary repairs.
- B. SMUD will, at the customer's request, relocate existing outdoor lighting service equipment, provided the customer reimburses SMUD for the relocation cost.

V. Conditions of Service

- A. Service shall be alternating current at a frequency of approximately 60 hertz, single phase.
- B. Where new facilities are required in order to provide service for an applicant under this rate, SMUD may require a contract for service for a period not to exceed three years.
- C. Information on equipment that qualifies for this rate schedule and the associated monthly charge is available on the SMUD website, www.smud.org, or will be furnished upon request. SMUD will review this information at least annually and update as appropriate. SMUD retains the right to modify the listing of approved fixtures and lamps to accommodate changing technology or other business needs criteria.

VI. Billing

A. Connected Load

The manufacturer's rating in watts (including all auxiliary equipment) will be used as connected load.

DRAFT
Outdoor Night Lighting Service
Rate Schedule NLGT

B. Proration of Charges

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The Electricity Usage Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

(End)

DRAFT
Residential Service
Rate Schedule R

I. Applicability

This Rate Schedule R applies to single- and three-phase service for the following types of residential premises:

1. Individually metered residences including single-family homes, duplexes, apartments, and condominiums; and
2. General farm service where the meter also serves the residence or additional meters on a farm where the electricity consumed is solely for domestic purposes; and
3. Master-metered service to a qualifying multifamily accommodation or mobile home park that is submetered to all single-family units or individual mobile homes.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

A. Fixed Rate (rate category RF01)

1. The Fixed Rate is the alternative rate to SMUD’s Time-of-Day (TOD) (5-8 p.m.) Rate (rate category RT02) under Rate Schedule R-TOD.
2. The Fixed Rate is required for customers serviced with analog meters and digital non-communicating meters.
3. Customers who qualify for Rate Schedule NEM1 and have an eligible renewable electrical generation facility that was approved for installation prior to January 1, 2018 are eligible to enroll in the Fixed Rate and may remain on the Fixed Rate after December 31, 2022.
4. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation on or after January 1, 2018 are not eligible to enroll in the Fixed Rate.
5. Customers who have an eligible renewable electrical generation facility under Rate Schedule SSR are not eligible to enroll in the Fixed Rate.
6. Customers who have a storage facility without an associated eligible generating facility are not eligible to enroll in the Fixed Rate.
7. Customers who have master meters, including those enrolled on the RSMM rate category, are not eligible to enroll in the Fixed Rate.
8. The Fixed Rate will be used for the collection of revenue associated with unauthorized use of residential electric service regardless of the date(s) or time(s) in which the use occurred.

B. Legacy Rate (rate categories RSCH, RWCH, RSEH, RWEH, RSGH and RWGH) Closed

1. The Legacy Rate is closed for enrollment to all residential customers who do not have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018.
2. The Legacy Rate will no longer be an available rate option to residential customers once a customer has been transitioned to the TOD (5-8 p.m.) Rate. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018 and are enrolled on the Legacy Rate may remain on this closed rate until transitioned to SMUD’s standard TOD (5-8 p.m.) Rate as early as January 1, 2023, as technically feasible.. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.
4. The Legacy Rate will be eliminated once all customers are removed from this rate and the rate transition is complete.

DRAFT
Residential Service
Rate Schedule R

C. Master-Metered Multifamily Accommodation and Mobile Home Park Billing (Rate Category RSMM)

1. This rate is closed to new customers unless SMUD determines that it is not reasonable or feasible to provide service and meter the individual units directly.
2. The master-metered customer's electricity consumption will be billed using the total kWh usage of the master-meter divided by the number of occupied single-family accommodations. The billing calculation will include applicable discounts to all kWh Usage Charges and System Infrastructure Fixed Charge (SIFC) for qualifying energy assistance and medical equipment discount program participants. The customer must advise SMUD within 15 days following any change in the number of occupied single-family accommodations wired for electric service.

II. Firm Service Rates

A. Fixed Rate Customers (rate category RF01)

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Fixed Rate (RF01)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1153	\$0.1170	\$0.1194
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1870	\$0.1907

B. Legacy Rate Customers (rate categories RSCH, RWCH, RSEH, RWEH, RSGH, RWGH) Closed

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Legacy Rates (RSCH, RWCH, RSEH, RWEH, RSGH, RWGH) (Closed)			
Winter Season* (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1279	\$0.1298	\$0.1324
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1486	\$0.1516

* All seasons with the exclusion of summer (June 1 – September 30). Winter Season includes Fall (Oct 1 – Nov 30) and Spring (Apr 1 – May 31) periods for Electric Heat rate customers (RSCH, RWCH, RSEH, RWEH).

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Residential Service
Rate Schedule R

C. Master-Metered Multifamily Accommodation and Mobile Home Park Billing (Rate Category RSMM) Closed

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Master Metered Multifamily and Mobile Home Park Billing (Closed)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	\$0.1279	\$0.1298	\$0.1324
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
All kWh usage per month <i>\$/kWh</i>	n/a	\$0.1486	\$0.1516

III. Electricity Usage Surcharges

Refer to the following rate schedule for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu

A. Energy Assistance Program. Refer to Rate Schedule EAPR.

B. Medical Equipment Discount Program. Refer to Rate Schedule MED.

C. Joint Participation in Medical Equipment Discount and Energy Assistance Programs. Refer to Rate Schedule MED.

D. Time-of-Day Rate. Refer to Rate Schedule R-TOD.

E. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) have a combined nameplate rating of less than 100 kW; and
3. The generator(s) are connected to SMUD's electrical system; and
4. SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.

Generator Standby Charge January 1 through December 31

\$/kW of Contract Capacity per month

Effective October 1, 2022	\$7.450
Effective March 1, 2022	\$7.562
Effective January 1, 2023	\$7.713

In addition to the Generator Standby Charge, SMUD will continue to bill for all applicable charges under this rate. These charges include SIFC and electricity usage charges for SMUD-provided power.

The Generator Standby Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **R-3**

Effective: **January 1, 2022**

Edition: **January 1, 2022**

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Residential Service
Rate Schedule R

F. Customer Energy Generation Option. Refer to Rate Schedule NEM1.

G. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org.

H. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

I. Plug-In Electric Vehicle (PEV) Option. Refer to Rate Schedule R-TOD.

J. Residential Three-Phase Service Option

This option is open to customers located in areas where three-phase service is available. A Special Facilities fee is charged to cover the additional costs for providing this service. This charge is in addition to the SIFC.

Three-Phase Service – January 1 through December 31

Special Facilities fee per month

Effective October 1, 2022	\$48.71
Effective March 1, 2022	\$49.45
Effective January 1, 2023	\$50.45

V. Billing

KWh usage may be prorated for nonstandard billing periods, when billing period spans a price change, and/or when the billing period spans more than one season. The monthly SIFC will be prorated when the bill period is shorter than 27 days. The following table shows the basis for the proration in these circumstances. The monthly System Infrastructure Fixed Charge is determined by the billing period end date.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days (SIFC and kWh)	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days (kWh)	
Seasons overlap and price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective season or pricing periods.

(End)

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Residential Time-of-Day Service
Rate Schedule R-TOD

I. Applicability

This Rate Schedule R-TOD applies to single- and three-phase service for the following types of residential premises:

1. Individual or dual metered residences with digital communicating meter installed, including single-family homes, duplexes, apartments, and condominiums; and
2. General farm service where the meter also serves the residence or additional meters on a farm where the electricity consumed is solely for domestic purposes.
3. Customers who have an eligible renewable electrical generation facility under Rate Schedules NEM1 or SSR that was approved for installation by SMUD on or after January 1, 2018, or who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2018 must be on this Rate Schedule R-TOD.

Master-metered service to a qualifying multifamily accommodation or mobile home parks are not eligible for Time-of-Day rates under rate schedule R-TOD.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

A. Time-of-Day (5-8 p.m.) Rate (rate category RT02)

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD’s residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
2. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.
3. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

B. Optional Time-of-Day (4-7 p.m.) Rate (rate category RT01) Closed

1. The TOD (4-7 p.m.) Rate is closed for enrollment to residential customers.
2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018, and are enrolled on the TOD (4-7 p.m.) Rate may remain on this closed rate until December 31, 2022.
3. The TOD (4-7 p.m.) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule NEM1 as early as January 1, 2023 as technically feasible. Customers will then transition to SMUD’s standard TOD (5-8 p.m.) Rate, as determined by SMUD.
4. Existing customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD before January 1, 2018 may enroll in the TOD (5-8 p.m.) Rate or any other open rate at any time; however, once enrolled in the TOD (5-8 p.m.) Rate or any other open rate, the customer cannot return to the TOD (4-7 p.m.) Rate.

Residential Time-of-Day Service Rate Schedule R-TOD

5. This rate has three kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Jun 1 - Sep 30	Summer Super Peak	Weekdays between 4:00 p.m. and 7:00 p.m.
Year-round (Jan 1 - Dec 31)	Peak	Weekdays between 9:00 a.m. and 9:00 p.m. except during the Summer Super Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

C. Optional Critical Peak Pricing (CPP) Rate (rate categories RTC1 and RTC2)

- The CPP rate is available as of June 1, 2022 for customers who are participating in a qualifying program. Customers that have accepted a storage incentive under the Solar and Storage Rate incentive program are required to enroll in this rate for a duration as determined by SMUD program rules posted on www.smud.org.
- A maximum of 30,000 customers may be enrolled in this rate at any given time.
- CPP Events may range from one to four hours, but not more than once per day. CPP Events may be called during any hour of the day during summer months, including holidays and weekends, up to 50 hours per summer. CPP Events may span multiple time-of-day periods.
- CPP Events will be announced by SMUD a day in advance. However, in the event of a system emergency, announcements may occur the same day as the event.
- This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

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Residential Time-of-Day Service
Rate Schedule R-TOD

II. Firm Service Rates

A. Time-of-Day (5-8 p.m.) Rate

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Time-of-Day (5-8 p.m.) Rate (RT02)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1494	\$0.1516	\$0.1547
Off-Peak <i>\$/kWh</i>	\$0.1082	\$0.1098	\$0.1120
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
Peak <i>\$/kWh</i>	n/a	\$0.3215	\$0.3279
Mid-Peak <i>\$/kWh</i>	n/a	\$0.1827	\$0.1864
Off-Peak <i>\$/kWh</i>	n/a	\$0.1323	\$0.1350

B. Optional Time-of-Day (4-7 p.m.) Rate (Closed)

	Effective as of October 1, 2021	Effective as of March 1, 2022	Effective as of January 1, 2023
Time-of-Day (4-7 p.m.) Rate (RT01) (Closed)			
Winter Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$22.70	\$23.05	\$23.50
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1655	\$0.1680	\$0.1713
Off-Peak <i>\$/kWh</i>	\$0.0953	\$0.0967	\$0.0986
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	n/a	\$23.05	\$23.50
Electricity Usage Charge			
Summer Super Peak <i>\$/kWh</i>	n/a	\$0.4200	\$0.4284
Peak <i>\$/kWh</i>	n/a	\$0.1680	\$0.1713
Off-Peak <i>\$/kWh</i>	n/a	\$0.0967	\$0.0986

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Residential Time-of-Day Service
Rate Schedule R-TOD

C. Optional Critical Peak Pricing Rate

1. The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).
2. The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.
3. During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.
4. During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.
5. The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org.

D. Plug-In Electric Vehicle Credit (rate categories RT02, RT01, RTC1 and RTC2)

This credit is for residential customers who have a licensed passenger battery electric plug-in or plug-in hybrid electric vehicle.

Credit applies to all electricity usage charges from midnight to 6:00 a.m. daily

Electric Vehicle Credit..... **-\$0.0150/kWh**

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges.

- A. Hydro Generation Adjustment (HGA).** Refer to Rate Schedule HGA.

IV. Rate Option Menu

- A. Energy Assistance Program.** Refer to Rate Schedule EAPR.
- B. Medical Equipment Discount Program.** Refer to Rate Schedule MED.
- C. Joint Participation in Medical Equipment Discount and Energy Assistance Program.** Refer to Rate Schedule MED.
- D. Generator Standby Service Option**

Generator Standby Service applies when all of the following conditions are met:

1. The customer has generation, sited on the customer's premises, that serves all or part of the customer's load; and
2. The generator(s) have a combined nameplate rating less than 100 kW; and
3. The generator(s) are connected to SMUD's electrical system; and
4. SMUD is required to have resources available to provide supplemental service, backup electricity and/ or to supply electricity during generator(s) maintenance service.

Generator Standby Service – January 1 through December 31
\$/kW of Contract Capacity per month

Effective October 1, 2022	\$7.450
Effective March 1, 2022	\$7.562
Effective January 1, 2023	\$7.713

In addition to the Generator Standby Service Charge, SMUD will continue to bill for all applicable charges under the selected residential TOD rate. These charges include System Infrastructure Fixed Charges and electricity usage charges for SMUD-provided power. All energy provided to the customer by SMUD will be billed at the applicable residential TOD rates.

The Generator Standby Service Charge will be waived only for qualifying renewable generation under Rate Schedules NEM1 and SSR.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Resolution No. _____ adopted _____

Sheet No. **R-TOD-4**

Effective: **January 1, 2022**

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Residential Time-of-Day Service
Rate Schedule R-TOD

E. Customer Energy Generation Options. Refer to Rate Schedules NEM1 and SSR.

F. SMUD Renewable Energy Option

SMUD offers optional programs that allow customers to receive renewable energy for an additional charge, detailed on www.smud.org

G. Special Metering Charge

For customers who purchase and install additional equipment and software identified by SMUD meter specialists as necessary for load data collection and transfer to electronic media outside SMUD, SMUD will charge a monthly service fee to cover maintenance, software support and licensing fees. Payment for this nonstandard equipment and service will be made through provisions in Rule and Regulation 2, Section IV. Special Facilities. The fee schedule is available at SMUD's website, www.smud.org.

H. Residential Three-Phase Service Option

This option applies to customers located in areas where three-phase service is available. A Special Facilities fee is charged to cover the additional costs for providing this service. This charge is in addition to the System Infrastructure Fixed Charge.

Three-Phase Service – January 1 through December 31

Special Facilities fee per month

Effective October 1, 2022	\$48.71
Effective March 1, 2022	\$49.45
Effective January 1, 2023	\$50.45

V. Conditions of Service

A. Time-of-Day Billing Periods

Off-Peak pricing shall apply during the following holidays:

<u>Holiday</u>	<u>Month</u>	<u>Date</u>
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

DRAFT
Residential Time-of-Day Service
Rate Schedule R-TOD

VI. Billing

A. Proration of Charges

The electricity usage charge will not be prorated, regardless of the number of days in the billing period or the spanning of multiple seasons. The monthly System Infrastructure Fixed Charge will be prorated when the bill period is shorter than 27 days as shown in the following table. The monthly System Infrastructure Fixed Charge is determined by the billing period end date.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.

(End)

DRAFT
Street Lighting Service
Rate Schedule SLS

I. Applicability

This Rate Schedule SLS applies to outdoor lighting service facilities for:

1. Streets; and
2. Highways, and bridges; and
3. Public parks; and
4. Elementary schools, secondary schools, and colleges.

This schedule covers the following service categories:

- **Customer-owned and maintained — Rate Category SL_COM**
- **Customer-owned and maintained, metered — Rate Category SL_COM_M**
- **Customer-owned, SMUD-maintained — Rate Category SL_CODM**
- **SMUD (District)-owned and maintained — Rate Category SL_DOM**

For the purposes of the following prices a "month" is considered to be a single billing period of 27 to 34 days.

II. Customer-owned and maintained — Rate Category SL_COM

Where the customer owns and maintains the street lighting equipment, SMUD will furnish electricity and switching. This rate is available to customers that are not eligible for the default SL_COM_M metered rate or as determined by SMUD. Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_COM		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

III. Customer-owned and maintained, metered — Rate Category SL_COM_M

Eligible street lighting customers requesting new installations of lamps or additions of new lamps to existing accounts will default to the metered SL_COM_M rate. Eligible street lighting customers will be served under the default rate or as determined by SMUD.

Where the customer owns and maintains street lighting equipment, that is controlled to **operate solely during dusk to dawn hours**, SMUD will furnish electricity, the meter, and switching. The charges will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_COM_M		
System Infrastructure Fixed Charge <i>per month per meter</i>	\$10.50	\$10.70
Electricity Usage Charge <i>All day \$/kWh</i>	\$0.0907	\$0.0925

DRAFT
Street Lighting Service
Rate Schedule SLS

IV. Customer-owned, SMUD (District)-maintained — Rate Category SL_CODM (Closed to new customers and installations)

This rate is closed to new customers and installations effective January 23, 2014. Where the customer owns the street lighting equipment and SMUD supplies electricity, switching and, lamp servicing and maintenance, such service will be rendered for lamps and fixtures of sizes and types as SMUD has approved. Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_CODM (closed)		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

There is a separate monthly charge for maintaining each fixture and/or lamp. SMUD maintains a list of acceptable lamps and fixture types with standard ratings and the corresponding monthly maintenance charge.

This service is restricted to SMUD-approved locations.

V. SMUD (District)-owned and maintained — Rate Category SL_DOM

Where the customer requests that SMUD install, operate, and maintain the entire street lighting system, such service will be provided with fixtures and lamps of sizes and types as approved by SMUD. This rate is restricted to streets that are defined as right-of-way held in public trust, and maintained by the applicable governmental jurisdiction. At SMUD's sole discretion, streets not readily accessible to the general public will be served under the customer owned and maintained rates only.

There will be a separate monthly charge for installation and maintenance of each fixture (including lamps, refractors, ballasts, photo cells and other typical support equipment). These charges are based on the installation of street lighting fixtures of a design specified by SMUD and mounted by means of varying length brackets affixed to poles that are used to carry distribution system circuits.

When additional or alternative facilities are installed at the customer's request, monthly charges will be assessed according to SMUD's published charge schedule.

A. Pricing

Effective the first full billing cycle after the following date(s), the charge will be as follows:

	Effective as of March 1, 2022	Effective as of January 1, 2023
SL_DOM		
Electricity and Switching Charge <i>\$ per watt of connected load</i>	\$0.0302	\$0.0308

B. Relocations and Changes

At the customer's request, SMUD may, at its sole discretion, relocate existing equipment provided the customer reimburses net expense to SMUD incurred in connection therewith, including appropriate engineering and general expense.

DRAFT
Street Lighting Service
Rate Schedule SLS

At the customer's request, SMUD may, at its sole discretion, replace existing equipment with new equipment prior to expiration of the existing equipment's service life, provided the customer pays to SMUD an amount equal to the unrecovered cost, less salvage value, of the existing equipment to be retired and executes a fifteen-year contract for service effective with installation of the new equipment.

C. New Service

New service will require an initial contract term of 15 years effective with installation of the service. If service is terminated before the contract term, the customer will be responsible for an amount equal to the unrecovered cost, less salvage value, of the equipment installed.

VI. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity usage surcharges that apply to all kWh.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

VII. Conditions of Service

- A.** Service will be alternating current at a frequency of approximately 60 hertz, single phase, at voltages specified by SMUD. Lamps shall be controlled to operate from dusk to dawn each night so as to give approximately 4,000 hours of lighting service annually.
- B.** When a customer requests that SMUD finance as well as install customer-owned street lighting equipment, provisions of Rule and Regulation 2 apply.
- C.** Information on equipment that qualifies for rates on this schedule and the associated monthly charges is available, on SMUD's website, www.smud.org, or will be furnished upon request. SMUD will review this information at least once per year and update as necessary for additional approved equipment, technology improvements and pricing changes.
- D.** SMUD will furnish a meter to provide service under the metered rate categories.

VIII. Billing

A. The manufacturer's rating in watts (including all auxiliary equipment) will be used as connected load.

B. Proration of Charges (SL_DOM, SL_COM, and SL_CODM)

Billing periods for nonstandard lengths will be billed as follows:

- 1.** Service connected for 15 or more days during a billing period will be billed for a full month's service.
- 2.** Service connected for 1-14 days during a billing period will not be billed for such partial month's service.
- 3.** Service discontinued for 15 or more days during a billing period will not be billed for such partial month's service.
- 4.** Service discontinued for 1-14 days during a billing period will be billed for a full month's service.

DRAFT
Street Lighting Service
Rate Schedule SLS

C. Proration of Charges (SL_COM_M)

Charges are prorated when the billing period is less than 27 days, more than 34 days or spans more than one price. The System Infrastructure Fixed Charge will be prorated as shown in the following table.

Billing Circumstance	Basis for Proration
Bill period is shorter than 27 days	Relationship between the length of the billing period and 30 days.
Bill period is longer than 34 days	
Price changes within bill period	Relationship between the length of the billing period and the number of days that fall within the respective pricing periods.

(End)

DRAFT
Traffic Control
Intersection Lighting Service
Rate Schedule TC ILS

I. Applicability

This Rate Schedule TC ILS applies to electric service for the benefit of cities, counties, and other public agencies for pedestrian and vehicular traffic signal units, together with related control devices for the purpose of traffic safety and management and associated intersection lighting where the mounting, standards, control supports, signal equipment, and luminaires are owned and maintained by the customer.

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

II. Rates (Rate Categories TS_F, TS)

	Effective as of March 1, 2022	Effective as of January 1, 2023
TS_F, TS		
System Infrastructure Fixed Charge <i>for metering point per month or portion thereof</i>	\$6.23	\$6.36
Electricity Usage Charge <i>All day \$/kWh</i>	\$0.1138	\$0.1161

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Conditions of Service

1. Service shall be alternating current, at a frequency of approximately 60 hertz, single phase, at secondary voltages specified by SMUD, and at service points mutually agreed upon between the customer and SMUD.
2. Lamps for intersection lighting shall be controlled to operate from dusk to dawn each night so as to give approximately 4,000 hours of lighting service annually.
3. Where the monthly consumption of electricity is consistently small or can be predetermined with reasonable accuracy by reference to the capacity of equipment served and the hours of operation, SMUD may, with customer's consent, calculate electricity consumed in lieu of providing metering equipment (TS_F).

V. Billing

For billing periods of less than 27 days or more than 34 days, System Infrastructure Fixed Charges will be prorated on the basis of the relationship between the length of the billing period and 30 days. No proration will be made on first-time billing when the total period of service is less than 30 days.

(End)

DRAFT

Traffic Signal Service
Rate Schedule TSS (Closed to new customers)

I. Applicability

This Rate Schedule TSS applies to electric service for pedestrian and vehicular traffic signal units, together with related control devices where the mounting standards, control supports, and signal equipment are owned and maintained by the customer.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

II. Rate (Rate Category SL_TSF)

Monthly Charges

	Effective as of March 1, 2022	Effective as of January 1, 2023
TSS		
For units not larger than 70 watts or connected load and not exceeding three lamps per unit, the monthly charge per unit per month	\$4.52	\$4.61
For units larger than 70 watts or connected load and not exceeding three lamps per unit, the monthly charge per lamp per watt	\$0.0317	\$0.0323
Total charge per month being not less than	\$4.52	\$4.61

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on electricity surcharges that apply to all kWh usage.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Conditions of Service

1. Service shall be alternating current, at a frequency of approximately 60 hertz, single phase, at secondary voltages specified by SMUD.
2. No additional service will be provided by SMUD under Rate Schedule TSS. Upon notification by SMUD and installation of metering facilities, individual accounts will be transferred from Rate Schedule TSS to Rate Schedule TC ILS.

V. Billing

A. Connected Load

“Connected load” as used in this rate schedule shall be the sum of the capacities of all of the customer’s equipment that may be operated from SMUD’s lines at the same time.

B. Billing Periods of Nonstandard Length

Billing periods of nonstandard length will be billed as follows:

1. Service connected for 15 or more days during a billing period will be billed for a full month’s service.
2. Service connected for 1-14 days during a billing period will not be billed for such partial month’s service.
3. Service discontinued for 15 or more days during a billing period will not be billed for such partial month’s service.
4. Service discontinued for 1-14 days during a billing period will be billed for a full month’s service.

(End)

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein, the recommendation includes a new Solar and Storage Rate; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300

community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in 1 meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial targets, address the cost shift from the existing Net Energy Metering (NEM) rate, and support the 2030 Zero Carbon Plan; and

WHEREAS, the 2030 Zero Carbon Plan was approved by the Board in April 2021, and sets an ambitious goal to reach zero carbon emissions in SMUD's power supply by 2030; and

WHEREAS, SMUD developed a public stakeholder process to design a Solar and Storage Rate that will result in a win-win solution for SMUD's customers, solar and storage industries and advocates, environmental advocates, and low-income advocates; and

WHEREAS, the public stakeholder process involved a Technical Working Group designed to receive input into the development of a value of behind the meter rooftop solar study; SMUD spent nearly four months with a Technical Working Group made up of a diverse range of stakeholders representing many views, including the solar industry, the environmental community, solar and non-solar customers, low-income advocates, academics and the utility solar industry; this Technical Working Group agreed on the key inputs for an independent study specific to SMUD's system and territory; and

WHEREAS, a Request for Proposal for an independent third party to determine the value of behind the meter rooftop solar using the values agreed upon by the Technical Working Group, resulted in the development of the Value of Solar and Solar + Storage Study (VOS Study) by Energy + Environmental Economics (E3); and

WHEREAS, a comprehensive independent VOS study was completed in September 2020 and made available to the public on www.smud.org, and the proposed solar and storage export rate reflects the value of solar, as reported in the study, which

includes transmission, distribution, generation capacity, energy, greenhouse gases and avoided land use; and

WHEREAS, the VOS Study valued solar at 7¢ per kilowatt hour (kWh) under the assumption that the energy produced from that solar replaces energy produced by a natural gas power plant in 2020, and 0.4¢ per kWh for indirect benefits of behind the meter rooftop solar; and

WHEREAS, over the past two years, SMUD has spent close to 1,000 hours working collaboratively with customers, stakeholders and the solar and storage industry to design a holistic, transformational and industry-leading rate proposal, and

WHEREAS, the 2030 Zero Carbon Plan calls for up to an additional 3,000 Megawatts (MW) of new renewable energy and storage to be added to SMUD's service territory by 2030; with rooftop solar paired with battery storage; and which will incentivize grid stability as SMUD transitions away from carbon-emitting power plants; and

WHEREAS, the netting concept in the current NEM1 rate means customers get less value if they install storage, which discourages the adoption of storage; as a result, only about 300 SMUD customers have installed storage since the inception of the current NEM1 rate; and

WHEREAS, storage technology is still developing, making the cost prohibitively expensive for most customers, and it is the intent of SMUD to transform the current solar only industry to a solar plus storage industry with the investment of \$25 million in battery incentives in combination with other supporting rates and programs to promote the adoption of rooftop paired with storage; and

WHEREAS, the recommendations in the CEO & GM Report include the implementation of a new Solar and Storage Rate, designed to encourage a transition from solar only to solar plus storage and more accurately compensate customers for the value of solar sent to the grid; and

WHEREAS, with the 2030 Zero Carbon Plan including up to 3,000 megawatts (MW) of renewable energy and storage in SMUD's service territory by 2030, this goal requires a significant increase in customers that adopt storage; and

WHEREAS, as of June 2021, SMUD had approximately 37,000 customers with solar, but only about 300 customers with storage; and

WHEREAS, SMUD proposes a Solar and Storage Rate for energy sold to SMUD – all customers selling any energy back to the grid will be paid 7.4¢ per kWh, regardless of time of day or season; and

WHEREAS, the recommendation in the CEO & GM Report includes allowing Solar and Storage Rate customers to size their system for future electrification with a new higher allowed system sizing of 110% of household usage; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedule NEM1 to reflect the postponement of the commercial rate restructure; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is also implementing a one-time interconnection fee to pay for the costs of interconnecting solar and storage customers to SMUD's grid; the fees do not require a rate action for approval, and the amount of the fees will be posted on www.smud.org; and

WHEREAS, apart from the recommendations included in this rate action, SMUD has committed to invest \$25 million to implement incentives for battery program partnerships based on the size of the storage system and how that storage system is operated or controlled – by the customer or through a virtual power plant partnership; the details of the program(s) and amounts of incentives will be available on www.smud.org, these incentives do not require a rate action for approval and may be adjusted as necessary to assist SMUD in meeting the 2030 Zero Carbon Plan; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is committed to bringing the benefits of solar to multi-family dwelling communities in historically under-resourced communities through a Virtual Solar program; the new Virtual Solar program would allow property owners of a qualifying multi-family affordable housing complex to install a solar generation system that allocates a portion of the financial benefit of the generation to each residential tenant, according to SMUD's Virtual Solar program policies; the development of SMUD programs do not require a rate action, and the details of the program will be available on www.smud.org; and

WHEREAS, programs and fees do not require Board approval and information on such programs and fees is provided for informational purposes only to describe the overall holistic rate package; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, and supports the 2030 Zero Carbon Plan; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the lock-in for NEM customers that interconnect prior to January 1, 2022, complies with Proposition 26 because SMUD is permitted to reward investment in a solar demand management program designed to encourage conservation of traditional resources and increase supply for all customers, and the cost of such a program may be borne by all customers; state law also requires that SMUD displace its fossil fuel reliance, and compliance with this regulatory mandate is a cost of service that may be funded by all ratepayers; and

WHEREAS, the NEM rates were in place prior to the adoption of Proposition 26, and subsequent rate changes brought a subset of solar rates closer to the cost of service; therefore, NEM rates may be locked in as legacy rates under Proposition 26; and

WHEREAS, the VOS Study supports the Solar and Storage Rate export compensation rate, which complies with Proposition 26; and

WHEREAS, the export compensation rate will be adjusted every four years in response to future rate studies; however, these adjustments cannot increase or decrease the export compensation rate by more than 30% of the rate that applied during the previous four-year period; and

WHEREAS, the value of solar power is expected to decrease in the future, and the 30% cap on the export rate increases is not anticipated to impact export compensation; conversely, to the extent that the 30% cap on rate decreases benefits customers on the Solar and Storage Rate, this subsidy is justified by both increased supply available to all customers, and the regulatory mandate to displace fossil fuel reliance; and

WHEREAS, this Board has carefully considered the CEO & GM Report, public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. CHANGES TO RATE SCHEDULE NEM2:

a. Effective January 1, 2022, close and replace Rate Schedule NEM2 with Rate Schedule SSR. All customers on Rate Schedule NEM2 as of December 31, 2021, will be subject to Rate Schedule NEM1.

Section 2. CHANGES TO RATE SCHEDULE NEM1:

a. Effective September 17, 2021, modify the first paragraph of Section VII of Rate Schedule NEM1 to reflect the residential rate requirement approved in Resolution 17-06-09 and to be on Rate Schedule R-TOD.

b. Effective September 17, 2021, implement several minor language updates as specified in Rate Schedule NEM1.

c. Effective September 17, 2021, Rate Schedule NEM1 will apply to customers that meet the following criteria:

- i. Moved in or established service prior to January 1, 2022;
- and
- ii. Application for interconnection approved by SMUD prior to January 1, 2022.

d. Effective September 17, 2021, modify Rate Schedule NEM1 as described in the following table:

Category	Moved in or established service prior to Jan. 1, 2022 AND Application for interconnection approved by SMUD prior to Jan. 1, 2022
On or before December 31, 2030	<ul style="list-style-type: none">• Customer is subject to NEM 1
After December 31, 2030	<ul style="list-style-type: none">• Customer is subject to the Solar and Storage Rate.

Move in/move out, Transfer of Service	<ul style="list-style-type: none"> • New customer at premises subject to Solar and Storage Rate. • Customer subject to Solar and Storage Rate at new premises, if applicable.
System Modification/Replacement	<ul style="list-style-type: none"> • Subject to Solar and Storage Rate if: <ol style="list-style-type: none"> 1. System size increased more than 10% of generating capacity originally approved, or 1 kW, whichever is greater, or exceeds 110% of generating capacity originally approved. 2. Revised/new interconnection application for system replacement.
Storage Incentives	<ul style="list-style-type: none"> • Customers are required to be on Solar and Storage Rate to receive storage incentives.
Transition to Solar and Storage Rate	<ul style="list-style-type: none"> • If a customer enrolls in the Solar and Storage Rate, they cannot return to Rate Schedule NEM1.
On or After January 1, 2022	<ul style="list-style-type: none"> • Rate Schedule NEM1 is closed to new customers, except to those customers that are subject to Section II in Rate Schedule SSR.

e. Effective September 17, 2021, modify Rate Schedule NEM1 by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, Rate Schedule SSR will apply to customers that meet the following criteria:

- i. Moved in or established service on or after January 1, 2022 to a premises with an eligible generating facility; or
- ii. Have an eligible generating facility where the interconnection application was approved by SMUD on or after January 1, 2022.

b. Effective January 1, 2022, create Rate Schedule SSR as described in the following table:

Category	<p>Moved in or established service on or after Jan. 1, 2022</p> <p>OR</p> <p>Application for interconnection approved by SMUD on or after Jan. 1, 2022</p>
System Size	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
System Modification/Replacement	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
Export Compensation Rate	<ul style="list-style-type: none"> \$0.0740 per kWh effective January 1, 2022.
Export Compensation Rate Updates	<ul style="list-style-type: none"> SMUD will update the export compensation rate every four years, starting in 2026, using a combination of publicly available local indices and SMUD actual costs for components of the Export Compensation Rate. The Export Compensation Rate will not be changed more than $\pm 30\%$ every four years. The revised value will be subject to Board approval at a regular Board meeting and will be posted on smud.org.
Solar and Storage Implementation Date	<ul style="list-style-type: none"> January 1, 2022. In the event that the Solar and Storage Rate is unavailable January 1, 2022, customers will temporarily be subject to Rate Schedule NEM1 until it is technically feasible to transition them to the Solar and Storage Rate.
Electing the Solar and Storage Rate	<ul style="list-style-type: none"> Customers with an eligible electrical generation facility on their premises may elect to enroll in the Solar and Storage Rate
Residential Rate Eligibility	<ul style="list-style-type: none"> Standard residential rate (including the optional CPP Rate).
Annual Settlement	<ul style="list-style-type: none"> No annual settlement. Export credit will roll forward to the next month.
Billing	<ul style="list-style-type: none"> All customers will be billed monthly for all charges. The export credit can only offset electricity usage charges.
Storage Incentives	<ul style="list-style-type: none"> May accept storage incentives.

Storage Only	<ul style="list-style-type: none"> Customers that have storage without an associated generating facility qualify for this tariff, regardless of date approved by SMUD.
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Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. MISCELLANEOUS CHANGES RELATED TO THE SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, replace all references to Rate Schedule NEM2 with Rate Schedule SSR in Rate Schedules R and R-TOD.

b. Effective January 1, 2022, update Section IV, Subsection F of Rate Schedule R as follows:

Customer Net Energy ~~Generation Metering~~ Option. Refer to Rate Schedules NEM1 and ~~NEM2~~.

c. Effective January 1, 2022, update Section IV, Subsection E of Rate Schedule R-TOD as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

d. Effective January 1, 2022, update Section IV, Subsection B of Rate Schedule AG as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

e. Effective September 17, 2021, update Section V, Subsection E of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. ALTERNATIVE RECOMMENDATION 1: SMUD received several comments to either create a glide path for the export rate or lock in the export rate for a certain amount of time.

This Board has considered the comments in this alternative recommendation 1 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service. Including a glide path would pay a higher export compensation rate that exceeds the value of solar, resulting in an untenable cross-subsidy from non-solar/storage customers.

Section 6. ALTERNATIVE RECOMMENDATION 2: SMUD received several comments to extend the implementation date of the Solar and Storage Rate. This Board has considered the comments in this alternative recommendation 2 and has determined not to adopt them for the following reasons:

- SMUD met the legal requirement of the original NEM law in 2017. As such, all customers who installed solar starting in 2018 could therefore be subject to a successor rate. The staff recommendation allows those customers to continue to receive NEM1 compensation through 2030. As the effective date of a successor rate has already been extended for 4 years while SMUD continued to offer NEM1 after 2017, the staff

recommendation to implement the new Solar and Storage Rate on January 1, 2022, is reasonable.

Section 7. ALTERNATIVE RECOMMENDATION 3: SMUD received several comments to extend the time period that customers may continue to receive NEM1 benefits beyond 2030.

This Board has considered the comments in this alternative recommendation 3 and has determined not to adopt them for the following reasons:

- SMUD staff has determined that approximately 95% of customers who install solar in 2021 will have their solar systems paid back by the end of 2030. Additionally, for every year after 2030 that SMUD extends the NEM1 benefits, the cost shift to customers without solar increases by about \$10 million. SMUD must balance the benefit to our customers that have invested in solar along with those customers that have not.

Section 8. ALTERNATIVE RECOMMENDATION 4: SMUD received several comments to increase the export rate for excess generation and tie the export rate to the Time-of-Day time periods.

This Board has considered the comments in this alternative recommendation 4 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service.
- SMUD staff collaborated with the solar and storage industries to develop the new Solar and Storage Rate. The feedback received was to make the new Solar and Storage Rate as simple as possible for

customers to understand. The 7.4¢ per kWh compensation rate achieves this goal. SMUD staff did complete an analysis on a TOD-based compensation structure, and the results showed only a minimal difference from the 7.4¢ per kWh compensation. The staff proposal follows the Board directive on rates simplicity. As such, the staff proposal complies with SD-2 on being simple and easy to understand approach compared to a more complex compensation mechanism.

Section 9. ALTERNATIVE RECOMMENDATION 5: SMUD received several comments to increase the battery incentives. This Board has considered the comments in this alternative recommendation 5 and has determined not to adopt them for the following reasons:

- Staff used a holistic approach to address the market transformation from solar only to solar plus storage with a combination of rates and supporting programs. The battery storage incentives are programs and therefore outside of the Board's decision-making in this rate process. Programs will be implemented by staff and the intent is to allow flexibility and make adjustments to respond to demand, should the need arise.

Section 10. ALTERNATIVE RECOMMENDATION 6: SMUD received several comments to expand the Virtual Solar program to all multi-tenant properties. This Board has considered the comments in this alternative recommendation 6 and has determined not to adopt them for the following reasons:

- The Virtual Solar Program is outside of the Board's decision-making in this rate process.
- Low-income customers have been largely left out in the adoption of rooftop solar. It has created a fairness and equity issue. Of our nearly 36,000 residential solar customers, only about 5% or 2,000 are on our low-income or Energy Assistance Program Rate (EAPR), and SMUD has helped pay to install some of those systems. Our first priority, as stated above, is to provide under resourced communities with access to solar. After we launch this program, we will look to see how we can further expand virtual solar without adding additional cost shift, but our first priority must be our under-resourced communities.

~~**Section 11. ALTERNATIVE RECOMMENDATION 7: SMUD received several comments to provide more details on the Critical Peak Pricing (CPP) Rate. This Board has considered the comments in this alternative recommendation 7 and is providing the following information as requested:**~~

- ~~• Staff's proposal includes adequate detail to establish the CPP Rate on pages 43-46 of the CEO and GM Report.~~
- ~~• The prices for the CPP Rate will be included on the SMUD website to allow for flexibility in adjusting the rate to increase participation. The actual 2022 prices will be calculated at the end of 2021 based on market conditions at that time. Staff will then post the prices to the website.~~

~~Section 12.~~Section 11. ALTERNATIVE RECOMMENDATION 78:

SMUD received a recommendation that customers should not lose their NEM1 if they install a battery.

This Board has considered this alternative recommendation 78 and would like to clarify that the staff recommended proposal is consistent with this recommendation. Under the proposed Solar and Storage Rate, customers who currently receive NEM1 benefits will not lose those benefits if they install a battery. However, if a customer who currently receives NEM1 benefits chooses to accept a storage incentive for a battery, they will then be moved to the new Solar and Storage Rate.

~~Section 13.~~Section 12. ALTERNATIVE RECOMMENDATION 89:

SMUD received a recommendation to pay an export rate of 7.4¢ per kWh for system sizes up to 110% of household usage, and pay an export rate of cost of utility scale solar for systems sized 110-220% of household use.

This Board has considered this alternative recommendation 89 and has determined not to adopt it in this rate process because it will have significant implications to SMUD's billing system. SMUD may take this recommendation into further consideration in a future rate process if it can determine a reasonable solution.

~~Section 14.~~Section 13. ALTERNATIVE RECOMMENDATION 910:

SMUD received a recommendation to "clearly state in the SSR rate schedule, REC ownership and that a customer with such a facility shall transfer legal title for RECs at no cost to SMUD so other customers will not be burdened." Additionally, SMUD received a recommendation to remove the words s "eligible for certification" from Section I of the Solar and Storage Rate tariff.

This Board has considered the list of policies in this alternative recommendation ~~940~~ and has determined not to adopt the recommendation for the following reasons:

- SMUD is not proposing to make any changes to our current policies in regards to REC treatment in this rate process.
- To be eligible for the Solar and Storage Rate, a customer must have an eligible renewable energy resource as defined by the CEC, but does not need to have it registered.
- The export rate under the SSR rate schedule does not include the value of RECs and customers retain ownership of the RECs.
- ~~SMUD~~ SMUD may adopt programs in the future that address REC ownership and the process of transferring ownership.

~~•~~

~~Section 15.~~ Section 14. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

~~Section 16.~~ Section 15. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any

proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

(A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.

(C) The above findings are based on information set forth in the CEO & GM Report.

~~Section 17.~~**Section 16.** The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

~~Section 18.~~**Section 17.** To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations

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attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, *Volumes 1 and 2*” (the “CEO & GM Report”), which is incorporated by reference herein, the recommendation includes a new Solar and Storage Rate; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the CEO & GM Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notices of the hearing were duly published in the *Sacramento Bee* on June 22, June 25 and June 30, 2021; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300

community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer of in-person presentations, which resulted in 1 meeting being held and offers for follow-up meetings if desired; and

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on smud.org, which received approximately 3,300-page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually on ZoomGov and livestreamed via Granicus and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was introduced on August 31, 2021, by this Board to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, the CEO & GM Report set forth in detail the factors necessitating the proposed rate action, including the need to meet SMUD's financial targets, address the cost shift from the existing Net Energy Metering (NEM) rate, and support the 2030 Zero Carbon Plan; and

WHEREAS, the 2030 Zero Carbon Plan was approved by the Board in April 2021, and sets an ambitious goal to reach zero carbon emissions in SMUD's power supply by 2030; and

WHEREAS, SMUD developed a public stakeholder process to design a Solar and Storage Rate that will result in a win-win solution for SMUD's customers, solar and storage industries and advocates, environmental advocates, and low-income advocates; and

WHEREAS, the public stakeholder process involved a Technical Working Group designed to receive input into the development of a value of behind the meter rooftop solar study; SMUD spent nearly four months with a Technical Working Group made up of a diverse range of stakeholders representing many views, including the solar industry, the environmental community, solar and non-solar customers, low-income advocates, academics and the utility solar industry; this Technical Working Group agreed on the key inputs for an independent study specific to SMUD's system and territory; and

WHEREAS, a Request for Proposal for an independent third party to determine the value of behind the meter rooftop solar using the values agreed upon by the Technical Working Group, resulted in the development of the Value of Solar and Solar + Storage Study (VOS Study) by Energy + Environmental Economics (E3); and

WHEREAS, a comprehensive independent VOS study was completed in September 2020 and made available to the public on www.smud.org, and the proposed solar and storage export rate reflects the value of solar, as reported in the study, which

includes transmission, distribution, generation capacity, energy, greenhouse gases and avoided land use; and

WHEREAS, the VOS Study valued solar at 7¢ per kilowatt hour (kWh) under the assumption that the energy produced from that solar replaces energy produced by a natural gas power plant in 2020, and 0.4¢ per kWh for indirect benefits of behind the meter rooftop solar; and

WHEREAS, over the past two years, SMUD has spent close to 1,000 hours working collaboratively with customers, stakeholders and the solar and storage industry to design a holistic, transformational and industry-leading rate proposal, and

WHEREAS, the 2030 Zero Carbon Plan calls for up to an additional 3,000 Megawatts (MW) of new renewable energy and storage to be added to SMUD's service territory by 2030; with rooftop solar paired with battery storage; and which will incentivize grid stability as SMUD transitions away from carbon-emitting power plants; and

WHEREAS, the netting concept in the current NEM1 rate means customers get less value if they install storage, which discourages the adoption of storage; as a result, only about 300 SMUD customers have installed storage since the inception of the current NEM1 rate; and

WHEREAS, storage technology is still developing, making the cost prohibitively expensive for most customers, and it is the intent of SMUD to transform the current solar only industry to a solar plus storage industry with the investment of \$25 million in battery incentives in combination with other supporting rates and programs to promote the adoption of rooftop paired with storage; and

WHEREAS, the recommendations in the CEO & GM Report include the implementation of a new Solar and Storage Rate, designed to encourage a transition from solar only to solar plus storage and more accurately compensate customers for the value of solar sent to the grid; and

WHEREAS, with the 2030 Zero Carbon Plan including up to 3,000 megawatts (MW) of renewable energy and storage in SMUD's service territory by 2030, this goal requires a significant increase in customers that adopt storage; and

WHEREAS, as of June 2021, SMUD had approximately 37,000 customers with solar, but only about 300 customers with storage; and

WHEREAS, SMUD proposes a Solar and Storage Rate for energy sold to SMUD – all customers selling any energy back to the grid will be paid 7.4¢ per kWh, regardless of time of day or season; and

WHEREAS, the recommendation in the CEO & GM Report includes allowing Solar and Storage Rate customers to size their system for future electrification with a new higher allowed system sizing of 110% of household usage; and

WHEREAS, the recommendations in the CEO & GM Report include adding the Summer Super Peak Demand Charge back into Rate Schedule NEM1 to reflect the postponement of the commercial rate restructure; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is also implementing a one-time interconnection fee to pay for the costs of interconnecting solar and storage customers to SMUD's grid; the fees do not require a rate action for approval, and the amount of the fees will be posted on www.smud.org; and

WHEREAS, apart from the recommendations included in this rate action, SMUD has committed to invest \$25 million to implement incentives for battery program partnerships based on the size of the storage system and how that storage system is operated or controlled – by the customer or through a virtual power plant partnership; the details of the program(s) and amounts of incentives will be available on www.smud.org, these incentives do not require a rate action for approval and may be adjusted as necessary to assist SMUD in meeting the 2030 Zero Carbon Plan; and

WHEREAS, apart from the recommendations included in this rate action, SMUD is committed to bringing the benefits of solar to multi-family dwelling communities in historically under-resourced communities through a Virtual Solar program; the new Virtual Solar program would allow property owners of a qualifying multi-family affordable housing complex to install a solar generation system that allocates a portion of the financial benefit of the generation to each residential tenant, according to SMUD's Virtual Solar program policies; the development of SMUD programs do not require a rate action, and the details of the program will be available on www.smud.org; and

WHEREAS, programs and fees do not require Board approval and information on such programs and fees is provided for informational purposes only to describe the overall holistic rate package; and

WHEREAS, the recommendations in the CEO & GM Report, on balance, meet the competitive rate targets and the rate design metrics in Strategic Direction 2, Competitive Rates, and supports the 2030 Zero Carbon Plan; and

WHEREAS, the recommendations in the CEO & GM Report will ensure SMUD meets or exceeds the financial targets in Strategic Direction 3, Access to Credit Markets, and continues to meet the metrics and targets in the other Strategic Directions adopted by this Board, including those addressing reliability, customer relations, environmental leadership, and resource planning; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board desires to maintain certain pre-Proposition 26 rates; this Board understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services that supported the adoption of the rates; and

WHEREAS, the lock-in for NEM customers that interconnect prior to January 1, 2022, complies with Proposition 26 because SMUD is permitted to reward investment in a solar demand management program designed to encourage conservation of traditional resources and increase supply for all customers, and the cost of such a program may be borne by all customers; state law also requires that SMUD displace its fossil fuel reliance, and compliance with this regulatory mandate is a cost of service that may be funded by all ratepayers; and

WHEREAS, the NEM rates were in place prior to the adoption of Proposition 26, and subsequent rate changes brought a subset of solar rates closer to the cost of service; therefore, NEM rates may be locked in as legacy rates under Proposition 26; and

WHEREAS, the VOS Study supports the Solar and Storage Rate export compensation rate, which complies with Proposition 26; and

WHEREAS, the export compensation rate will be adjusted every four years in response to future rate studies; however, these adjustments cannot increase or decrease the export compensation rate by more than 30% of the rate that applied during the previous four-year period; and

WHEREAS, the value of solar power is expected to decrease in the future, and the 30% cap on the export rate increases is not anticipated to impact export compensation; conversely, to the extent that the 30% cap on rate decreases benefits customers on the Solar and Storage Rate, this subsidy is justified by both increased supply available to all customers, and the regulatory mandate to displace fossil fuel reliance; and

WHEREAS, this Board has carefully considered the CEO & GM Report, public comment, input, and alternatives from community meetings, public rate workshops, the noticed public hearing, and comments received by mail, telephone and email; and

WHEREAS, this Board finds that the proposed action is reasonable and in the best interests of the public and SMUD's customers; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. CHANGES TO RATE SCHEDULE NEM2:

a. Effective January 1, 2022, close and replace Rate Schedule NEM2 with Rate Schedule SSR. All customers on Rate Schedule NEM2 as of December 31, 2021, will be subject to Rate Schedule NEM1.

Section 2. CHANGES TO RATE SCHEDULE NEM1:

a. Effective September 17, 2021, modify the first paragraph of Section VII of Rate Schedule NEM1 to reflect the residential rate requirement approved in Resolution 17-06-09 and to be on Rate Schedule R-TOD.

b. Effective September 17, 2021, implement several minor language updates as specified in Rate Schedule NEM1.

c. Effective September 17, 2021, Rate Schedule NEM1 will apply to customers that meet the following criteria:

- i. Moved in or established service prior to January 1, 2022;
- and
- ii. Application for interconnection approved by SMUD prior to January 1, 2022.

d. Effective September 17, 2021, modify Rate Schedule NEM1 as described in the following table:

Category	Moved in or established service prior to Jan. 1, 2022 AND Application for interconnection approved by SMUD prior to Jan. 1, 2022
On or before December 31, 2030	<ul style="list-style-type: none">• Customer is subject to NEM 1
After December 31, 2030	<ul style="list-style-type: none">• Customer is subject to the Solar and Storage Rate.

Move in/move out, Transfer of Service	<ul style="list-style-type: none"> • New customer at premises subject to Solar and Storage Rate. • Customer subject to Solar and Storage Rate at new premises, if applicable.
System Modification/Replacement	<ul style="list-style-type: none"> • Subject to Solar and Storage Rate if: <ol style="list-style-type: none"> 1. System size increased more than 10% of generating capacity originally approved, or 1 kW, whichever is greater, or exceeds 110% of generating capacity originally approved. 2. Revised/new interconnection application for system replacement.
Storage Incentives	<ul style="list-style-type: none"> • Customers are required to be on Solar and Storage Rate to receive storage incentives.
Transition to Solar and Storage Rate	<ul style="list-style-type: none"> • If a customer enrolls in the Solar and Storage Rate, they cannot return to Rate Schedule NEM1.
On or After January 1, 2022	<ul style="list-style-type: none"> • Rate Schedule NEM1 is closed to new customers, except to those customers that are subject to Section II in Rate Schedule SSR.

e. Effective September 17, 2021, modify Rate Schedule NEM1 by adding “Summer Super Peak Demand Charge” to Section V, Subsection A.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 3. SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, Rate Schedule SSR will apply to customers that meet the following criteria:

- i. Moved in or established service on or after January 1, 2022 to a premises with an eligible generating facility; or
- ii. Have an eligible generating facility where the interconnection application was approved by SMUD on or after January 1, 2022.

b. Effective January 1, 2022, create Rate Schedule SSR as described in the following table:

Category	<p>Moved in or established service on or after Jan. 1, 2022</p> <p>OR</p> <p>Application for interconnection approved by SMUD on or after Jan. 1, 2022</p>
System Size	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
System Modification/Replacement	<ul style="list-style-type: none"> Cannot exceed 110% of customer's electrical usage.
Export Compensation Rate	<ul style="list-style-type: none"> \$0.0740 per kWh effective January 1, 2022.
Export Compensation Rate Updates	<ul style="list-style-type: none"> SMUD will update the export compensation rate every four years, starting in 2026, using a combination of publicly available local indices and SMUD actual costs for components of the Export Compensation Rate. The Export Compensation Rate will not be changed more than $\pm 30\%$ every four years. The revised value will be subject to Board approval at a regular Board meeting and will be posted on smud.org.
Solar and Storage Implementation Date	<ul style="list-style-type: none"> January 1, 2022. In the event that the Solar and Storage Rate is unavailable January 1, 2022, customers will temporarily be subject to Rate Schedule NEM1 until it is technically feasible to transition them to the Solar and Storage Rate.
Electing the Solar and Storage Rate	<ul style="list-style-type: none"> Customers with an eligible electrical generation facility on their premises may elect to enroll in the Solar and Storage Rate
Residential Rate Eligibility	<ul style="list-style-type: none"> Standard residential rate (including the optional CPP Rate).
Annual Settlement	<ul style="list-style-type: none"> No annual settlement. Export credit will roll forward to the next month.
Billing	<ul style="list-style-type: none"> All customers will be billed monthly for all charges. The export credit can only offset electricity usage charges.
Storage Incentives	<ul style="list-style-type: none"> May accept storage incentives.

Storage Only

- Customers that have storage without an associated generating facility qualify for this tariff, regardless of date approved by SMUD.

Revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 4. MISCELLANEOUS CHANGES RELATED TO THE SOLAR AND STORAGE RATE:

a. Effective January 1, 2022, replace all references to Rate Schedule NEM2 with Rate Schedule SSR in Rate Schedules R and R-TOD.

b. Effective January 1, 2022, update Section IV, Subsection F of Rate Schedule R as follows:

Customer Net Energy ~~Generation Metering~~ Option. Refer to Rate Schedules NEM1 and ~~NEM2~~.

c. Effective January 1, 2022, update Section IV, Subsection E of Rate Schedule R-TOD as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

d. Effective January 1, 2022, update Section IV, Subsection B of Rate Schedule AG as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

e. Effective September 17, 2021, update Section V, Subsection E of Rate Schedules CI-TOD1, CI-TOD2, CI-TOD3 and CI-TOD4 as follows:

Customer Net Energy ~~Generation Metering~~ Options. Refer to Rate Schedules NEM1 and ~~NEM2~~SSR.

Additions and revisions described above are detailed in the attached Rates, Rules and Regulations.

Section 5. ALTERNATIVE RECOMMENDATION 1: SMUD received several comments to either create a glide path for the export rate or lock in the export rate for a certain amount of time.

This Board has considered the comments in this alternative recommendation 1 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service. Including a glide path would pay a higher export compensation rate that exceeds the value of solar, resulting in an untenable cross-subsidy from non-solar/storage customers.

Section 6. ALTERNATIVE RECOMMENDATION 2: SMUD received several comments to extend the implementation date of the Solar and Storage Rate. This Board has considered the comments in this alternative recommendation 2 and has determined not to adopt them for the following reasons:

- SMUD met the legal requirement of the original NEM law in 2017. As such, all customers who installed solar starting in 2018 could therefore be subject to a successor rate. The staff recommendation allows those customers to continue to receive NEM1 compensation through 2030. As the effective date of a successor rate has already been extended for 4 years while SMUD continued to offer NEM1 after 2017, the staff

recommendation to implement the new Solar and Storage Rate on January 1, 2022, is reasonable.

Section 7. ALTERNATIVE RECOMMENDATION 3: SMUD received several comments to extend the time period that customers may continue to receive NEM1 benefits beyond 2030.

This Board has considered the comments in this alternative recommendation 3 and has determined not to adopt them for the following reasons:

- SMUD staff has determined that approximately 95% of customers who install solar in 2021 will have their solar systems paid back by the end of 2030. Additionally, for every year after 2030 that SMUD extends the NEM1 benefits, the cost shift to customers without solar increases by about \$10 million. SMUD must balance the benefit to our customers that have invested in solar along with those customers that have not.

Section 8. ALTERNATIVE RECOMMENDATION 4: SMUD received several comments to increase the export rate for excess generation and tie the export rate to the Time-of-Day time periods.

This Board has considered the comments in this alternative recommendation 4 and has determined not to adopt them for the following reasons:

- The 7.4¢ per kWh is supported by a comprehensive VOS study and reflects the reasonable cost of service.
- SMUD staff collaborated with the solar and storage industries to develop the new Solar and Storage Rate. The feedback received was to make the new Solar and Storage Rate as simple as possible for

customers to understand. The 7.4¢ per kWh compensation rate achieves this goal. SMUD staff did complete an analysis on a TOD-based compensation structure, and the results showed only a minimal difference from the 7.4¢ per kWh compensation. The staff proposal follows the Board directive on rates simplicity. As such, the staff proposal complies with SD-2 on being simple and easy to understand approach compared to a more complex compensation mechanism.

Section 9. ALTERNATIVE RECOMMENDATION 5: SMUD received several comments to increase the battery incentives. This Board has considered the comments in this alternative recommendation 5 and has determined not to adopt them for the following reasons:

- Staff used a holistic approach to address the market transformation from solar only to solar plus storage with a combination of rates and supporting programs. The battery storage incentives are programs and therefore outside of the Board's decision-making in this rate process. Programs will be implemented by staff and the intent is to allow flexibility and make adjustments to respond to demand, should the need arise.

Section 10. ALTERNATIVE RECOMMENDATION 6: SMUD received several comments to expand the Virtual Solar program to all multi-tenant properties. This Board has considered the comments in this alternative recommendation 6 and has determined not to adopt them for the following reasons:

- The Virtual Solar Program is outside of the Board's decision-making in this rate process.
- Low-income customers have been largely left out in the adoption of rooftop solar. It has created a fairness and equity issue. Of our nearly 36,000 residential solar customers, only about 5% or 2,000 are on our low-income or Energy Assistance Program Rate (EAPR), and SMUD has helped pay to install some of those systems. Our first priority, as stated above, is to provide under resourced communities with access to solar. After we launch this program, we will look to see how we can further expand virtual solar without adding additional cost shift, but our first priority must be our under-resourced communities.

Section 11. ALTERNATIVE RECOMMENDATION 7: SMUD received a recommendation that customers should not lose their NEM1 if they install a battery. This Board has considered this alternative recommendation 7 and would like to clarify that the staff recommended proposal is consistent with this recommendation. Under the proposed Solar and Storage Rate, customers who currently receive NEM1 benefits will not lose those benefits if they install a battery. However, if a customer who currently receives NEM1 benefits chooses to accept a storage incentive for a battery, they will then be moved to the new Solar and Storage Rate.

Section 12. ALTERNATIVE RECOMMENDATION 8: SMUD received a recommendation to pay an export rate of 7.4¢ per kWh for system sizes up to 110% of

household usage, and pay an export rate of cost of utility scale solar for systems sized 110-220% of household use.

This Board has considered this alternative recommendation 8 and has determined not to adopt it in this rate process because it will have significant implications to SMUD's billing system. SMUD may take this recommendation into further consideration in a future rate process if it can determine a reasonable solution.

Section 13. ALTERNATIVE RECOMMENDATION 9: SMUD received a recommendation to “clearly state in the SSR rate schedule, REC ownership and that a customer with such a facility shall transfer legal title for RECs at no cost to SMUD so other customers will not be burdened.” Additionally, SMUD received a recommendation to remove the words “eligible for certification” from Section I of the Solar and Storage Rate tariff.

This Board has considered the list of policies in this alternative recommendation 9 and has determined not to adopt the recommendation for the following reasons:

- SMUD is not proposing to make any changes to our current policies in regards to REC treatment in this rate process.
- To be eligible for the Solar and Storage Rate, a customer must have an eligible renewable energy resource as defined by the CEC, but does not need to have it registered.
- The export rate under the SSR rate schedule does not include the value of RECs and customers retain ownership of the RECs.

- SMUD may adopt programs in the future that address REC ownership and the process of transferring ownership.

Section 14. MODIFICATIONS: The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to the Rates, Rules and Regulations.

Section 15. ENVIRONMENTAL COMPLIANCE:

1.0 Section 21080(b)(8) of the California Public Resource Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide, in relevant part, that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purposes set forth in (A) through (D) below, and that a public agency shall incorporate written findings in the record in any proceeding in which an exemption is claimed setting forth with specificity the basis for the claim for exemption:

- (A) meeting operating expenses, including employee wage rates and fringe benefits,
- (B) purchasing or leasing supplies, equipment, or materials,
- (C) meeting financial reserve needs and requirements, or
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas.

2.0 This Board finds and declares:

(A) That all revenue produced by each and every one of the rate actions set forth in this Resolution shall exclusively be used for purposes permitted by Sections 21080(b)(8)(A) through (D) of the California Public Resource Code, and that no amount of revenue obtained from this rate increase shall be used for any other purpose. Therefore, all of the foregoing rate actions are exempt from CEQA.

(C) The above findings are based on information set forth in the CEO & GM Report.

Section 16. The new and revised Rate Schedules and Rules and Regulations referenced in this Resolution are attached and incorporated herein as Attachment ____.

Section 17. To the extent there is a discrepancy between this Resolution and the new and revised Rate Schedules and Rules and Regulations attached hereto, the new and revised Rate Schedules and Rules and Regulations shall control.

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Table of Contents

The following listed sheets contain all effective rates, rules and regulations affecting rates and service, and information relating thereto, in effect on and after the date indicated. All rates are applicable to the territory served by SMUD.

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Territory Served by SMUD

SMUD supplies electric service in most of Sacramento County and in a portion of Placer County.

Description of Service

A description of service available is contained in SMUD's Rule and Regulation 2.

The service available at any particular location should be ascertained by inquiry at SMUD's Customer Services Department office at 6301 S Street, Sacramento.

Procedure to Obtain Service

Any person or corporation whose premises are within the outer boundaries of SMUD may obtain service by applying for service at the Customer Services Department office establishing credit as hereinafter set forth and complying with SMUD's rules and regulations. Where an extension of SMUD's lines is necessary or whenever unusual service requirements are determined, applicant will be informed as to the conditions under which service will be supplied.

Establishment of Credit and Deposits

After making proper application for electric service, it will be necessary for applicant to establish his credit in accordance with Rule and Regulation 6.

General

1. MEASUREMENT OF ELECTRIC ENERGY

All electric energy supplied by SMUD to its customers shall be measured by means of suitable standard electric meters, except as otherwise specifically provided in SMUD's Rules and Regulations.

2. DISCOUNTS

All rates hereinafter listed are net rates and are not subject to discount unless specifically stated in the Rates.

Net Energy Metering Rate Schedule NEM1

I. Applicability

This Rate Schedule NEM1 applies to residential, commercial/industrial, and agricultural customers who established service at their premises prior to January 1, 2022 and have an electrical generation facility on their premises that is fueled by a renewable fuel source which had an application for interconnection approved by SMUD prior to January 1, 2022.

In the event that the Solar and Storage Rate is not available on January 1, 2022 due to implementation delays, this Rate Schedule NEM1 would temporarily apply to those customers on Rate Schedule SSR who establish service, move out/in, or transfer service at a premises that have an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2022 or have an electrical generation facility on their premises that is fueled by a renewable fuel source which was approved for interconnection by SMUD on or after January 1, 2022, that are subject to the transition period described under Section II. Transitional Conditions. These customers will be transitioned to Rate Schedule SSR as soon as technically feasible.

This Rate Schedule NEM1 will be closed to new customers as of January 1, 2022, except for those customers that are subject to the transition period described under Section II. Transitional Conditions of Rate Schedule SSR.

All NEM1 Customers will be transitioned to Rate Schedule SSR as early as January 1, 2031, as technically feasible. At that point, all residential customers must also be on Rate Schedule R-TOD. Once all customers have been transitioned, this Rate Schedule NEM1 will be eliminated.

Once a customer is enrolled in Rate Schedule SSR, they cannot return to this Rate Schedule NEM1.

A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- photovoltaic
- wind
- biomass
- solar thermal
- geothermal
- fuel cells using renewable fuels
- small hydroelectric
- digester gas
- municipal solid waste conversion
- landfill gas
- ocean wave
- ocean thermal
- tidal current

Small hydroelectric generation facilities will not qualify for this tariff if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this tariff if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

II. Generator Standby Charges

Customers who qualify for Net Energy Metering (NEM) are exempt from generator standby charges on that portion of their load that is served by the NEM eligible facility.

¹ See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

**Net Energy Metering
Rate Schedule NEM1****III. Conditions of Service****A. Eligibility**

The following are requirements for eligibility under this rate schedule:

1. The facility must be located on the customer's premises; and
2. The facility must operate in parallel with SMUD's distribution facilities; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The facility must be intended primarily to offset part or all of the customer's own electrical requirements; and
5. The facilities and the electrical requirements are located at a single and same metering point; and
6. The customer has not received storage incentives under a qualifying SMUD program; and
7. The facility does not increase in size more than 10% of the generating capacity originally approved, or 1 kW, whichever is greater, and does not exceed 110% of the generating capacity originally approved, based on the CEC-AC rating at the initial date of approval; and
8. The customer has not submitted a revised or new interconnection application for entire system replacement; and
9. The generating capacity can be a maximum of 3,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

IV. Metering

SMUD will pay for and install, at no cost to the customer, a single meter capable of registering the flow of electricity in both directions.

V. Payments

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

- A.** Charges for other than electricity usage must be paid monthly. This includes the System Infrastructure Fixed Charge, Maximum Demand Charge, Site Infrastructure Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge, program fees, surcharges and taxes.
- B.** Residential, Commercial Industrial customers on rate schedule CI-TOD and Agricultural customers meeting the eligibility criteria as defined in Section III (A) of this sheet, may pay monthly or annually for the net electricity consumed.
- C.** For all other customers, the net balance of all moneys owed must be paid each monthly billing cycle.
- D.** If, in any regular billing month, the electricity supplied by SMUD is less than the electricity supplied to SMUD by the customer's eligible generation system, the customer will receive retail-valued electricity credits for the excess electricity supplied to SMUD. The retail-valued electricity credits will carry over to the following billing period until the end of the settlement period. Retail-valued electricity credits will only be credited against electricity usage charges.

VI. Settlement Method

All customers who qualify for the net metering option will have a 12-month settlement period. For existing systems the settlement period begins on the customer's move-in date. For new installations, the settlement period begins on the first day of operations after the customer has requested to be on the NEM rate and the NEM-eligible system is approved by SMUD for grid connection. At the end of the customer's 12-month settlement period, any unused accumulated monthly retail electricity credits may be zeroed out.

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Net Energy Metering
Rate Schedule NEM1

A. Annual Net Surplus Generation

1. At the end of a customer's 12-month settlement period, SMUD shall calculate the amount of net surplus generation over the 12-month period. If the customer has net surplus generation, SMUD will, at the customer's election, either:
 - Provide a monetary payment to the customer for the net surplus; or
 - Roll over the net annual surplus kWh into the next 12-month period.

Monetary value per kWh of net surplus generation shall be based on the most recently published SMUD budget, calculated as the dollar value of the expected avoided generation and production-related costs divided by the forecasted annual energy sales.

2. For each kWh purchased by SMUD under this annual net surplus generation method, the ownership of the associated renewable electricity credit will transfer from the customer to SMUD.
3. The net surplus monetary value shall be calculated annually.
4. This net surplus monetary value will remain in effect for the duration of the fiscal year used for the calculation of the customer's net surplus generation.
5. The value will be published on SMUD's website, www.smud.org, by December 20 prior to the year the value is in effect.

B. Opt-Out of Annual Net Surplus Generation

Customers may elect to opt out of receiving compensation or kWh roll-over credit for their net surplus generation over their 12-month settlement period. Customers who elect to opt out will not receive any form of compensation nor credit for net surplus generation delivered to SMUD. Such customers will be allowed to retain any associated renewable electricity credits produced by their net surplus generation.

VII. Residential Rate Requirement

Residential customers who have an eligible renewable electrical generation facility on their premises that was approved by SMUD for installation, or who move-in or transfer service to a premises with an eligible renewable electrical generation facility on or after January 1, 2018 must also be on Rate Schedule R-TOD.

(End)

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Solar and Storage Rate
Rate Schedule SSR

I. Applicability

This Rate Schedule SSR applies to residential, commercial/industrial, and agricultural customers who establish service at a premises that has an electrical generation facility that is fueled by a renewable fuel source on or after January 1, 2022 (except customers subject to the transition period described under Section II. Transitional Conditions) or have an electrical generation facility on their premises that is fueled by a renewable fuel source which was approved for interconnection by SMUD on or after January 1, 2022 (except customers subject to the transition period described under Section II. Transitional Conditions).*

All customers that have an electrical generation facility on their premises on or before December 31, 2021 that is fueled by a renewable fuel source may elect to enroll in Rate Schedule SSR on or after January 1, 2022.

A renewable electrical generation facility is a facility that is eligible for certification as a renewable energy resource as defined by the California Energy Resources Conservation and Development Commission (CEC).¹ These facilities include, but may not be limited to, generators fueled by:

- | | |
|------------------------------------|------------------------------------|
| • photovoltaic | • digester gas |
| • wind | • municipal solid waste conversion |
| • biomass | • landfill gas |
| • solar thermal | • ocean wave |
| • geothermal | • ocean thermal |
| • fuel cells using renewable fuels | • tidal current |
| • small hydroelectric | |

Small hydroelectric generation facilities will not qualify for this tariff if the facility will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. Fuel cells will not qualify for this tariff if the fuel cell derives any portion of its fuel from a nonrenewable fuel.

*Storage facilities installed without an associated generating facility qualify for this tariff, regardless of the date approved by SMUD.

II. Transitional Conditions

In the event that this Solar and Storage Rate is not available on January 1, 2022 due to implementation delays, customers will temporarily be subject to Rate Schedule NEM1 until transitioned to Rate Schedule SSR when it is technically feasible.

The transitional customers may receive a storage incentive under a Solar and Storage Rate program and may size their electrical generating facility up to 110% of their own electrical requirements.

Customers with a storage facility without an associated eligible generating facility cannot be on Rate Schedule NEM1.

III. Generator Standby Charges

Customers who qualify for the Solar and Storage Rate through this Rate Schedule are exempt from generator standby charges on that portion of their load that is served by the eligible facility.

¹ See the CEC's most current Renewable Portfolio Standard Eligibility Guidebook for the purposes of providing the technical definitions of a renewable electrical generation facility.

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Solar and Storage Rate
Rate Schedule SSR

IV. Conditions of Service

A. Eligibility

The following are requirements for eligibility under this Rate Schedule:

1. The facility must be located on the customer's premises; and
2. The facility must operate in parallel with SMUD's distribution facilities; and
3. The customer must meet all requirements of Rule and Regulation 21; and
4. The facility must be intended primarily to offset up to 110% of the customer's own electrical requirements; and
5. The facilities and the electrical requirements are located at a single and same metering point; and
6. Residential customers must also be on Rate Schedule R-TOD; and
7. The generating capacity can be a maximum of 3,000 kilowatts.

For photovoltaic generation facilities, generation capacity is measured using the California Energy Commission Alternating Current (CEC-AC) rating. For all other renewable electrical generation facilities, the nameplate Alternating Current (AC) rating will be used to measure generation capacity. This paragraph defining the measurement of capacity only pertains to the applicability of this rate schedule and may differ from any measurement of capacity used in Rule and Regulation 21.

V. Metering

SMUD will pay for and install, at no cost to the customer, a single meter capable of registering the flow of electricity in both directions.

VI. Export Compensation Rate

The Export Compensation Rate effective January 1, 2022 will be \$0.0740 per kWh (subject to updates as described in the paragraph below).

Export is defined as all kWh registered on the customer bi-directional meter as delivered to SMUD.

SMUD will update the Export Compensation Rate every four years, starting in 2026, using a combination of publicly available local indices and SMUD actual costs for components of the Export Compensation Rate. The Export Compensation Rate will not be changed more than $\pm 30\%$ every four years. The revised value will be subject to Board approval at a regular Board meeting and will be posted on www.smud.org. The revised Export Compensation Rate will apply to all customers on the Solar and Storage Rate.

VII. Payments

For the purposes of this schedule a "month" is considered to be a single billing period of 27 to 34 days.

- A. In any regular billing month, the electricity supplied by SMUD is billed at retail pricing, based on the customer's rate category.
- B. Any electricity that is exported to SMUD is credited at the Export Compensation Rate on the customer's bill. The export credit can only offset electricity usage charges. Any remaining credit will carry over to subsequent billing periods.
- C. The System Infrastructure Fixed Charge, Summer Super Peak Demand Charge, Summer Peak Demand Charge, Maximum Demand Charge, Site Infrastructure Charge, electricity usage charges that are not offset by the export credit, program fees, surcharges and taxes must be paid each monthly billing cycle.

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Solar and Storage Rate
Rate Schedule SSR

VIII. Storage Incentives

- A. All customers that receive a storage incentive through a qualifying SMUD program must be on Rate Schedule SSR.
- B. Customers that received a storage incentive through a qualifying SMUD program that only have a storage facility (that is not associated with a renewable or other electrical generating facility) must be on Rate Schedule SSR.

(End)

RESOLUTION NO. _____

WHEREAS, on June 17, 2021, the Chief Executive Officer and General Manager released the “Chief Executive Officer and General Manager’s Report and Recommendation on Open Access Transmission Tariff, *Volume 1*” (the “OATT Report”), which OATT Report is incorporated by reference herein and made a part hereof; and

WHEREAS, by Resolution 21-06-06, adopted June 17, 2021, a public hearing on the OATT Report was scheduled for August 31, 2021, at 5:30 p.m.; and

WHEREAS, notice of the public hearing was duly published on the *Sacramento Bee* on June 22, June 25 and June 30, 2021, the public hearing was held at the aforementioned time virtually on ZoomGov and livestreamed via Granicus and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, SMUD conducted the two required public workshops on July 8, 2021, and July 27, 2021, to receive and respond to customer comments and questions; and

WHEREAS, SMUD held two qualifying public workshops, contacted over 1,200 community organizations and neighborhood associations leaders via email, letter or phone call invitations to offer an in-person presentation, sent emails to over 256,000 customers and organizations with tailored content for each audience, conducted over 50 presentations to community neighborhood and business organizations, over 300 community and business partners were provided content and were asked to share information regarding the rate proposal with their members and networks, and an additional 55 local agency elected officials were sent information packets with an offer

of in-person presentations, which resulted in one meeting being held and offers for follow-up meetings if desired; and;

WHEREAS, SMUD provided all customers information about the rate proposal via email, mail newsletters, and through the rate change proposal website on smud.org, which received approximately 3,300 page views; and

WHEREAS, SMUD received from members of the public written questions, as well as comments and alternative recommendations to the rate changes proposed; and

WHEREAS, the public hearing was held on August 31, 2021, and out of an abundance of caution due to the ongoing COVID-19 health and safety precautions, the public hearing was conducted virtually, and all interested persons were given an opportunity to comment and submit testimony; and

WHEREAS, pursuant to SMUD Ordinance No. 15-1, this resolution was duly introduced on August 31, 2021, by this Board of Directors to be circulated for a minimum of 10 calendar days for public review, input and comment; and

WHEREAS, in compliance with Government Code section 54999, SMUD sent written notifications by certified mail on June 28, 2021, and June 29, 2021, describing the rate proposal to local school districts, county offices of education, community college districts, California State University, the University of California, and state agencies; and

WHEREAS, by Resolution No. 04-02-02, this Board of Directors adopted SMUD's Open Access Transmission Tariff (OATT), and by Resolution Nos. 11-08-07 and 17-06-10, this Board of Directors updated the OATT; and

WHEREAS, revisions to the Schedule 1 (Scheduling, System Control and Dispatch Service) and Schedule 2 (Reactive Supply and Voltage Control from Generation or Other Sources Service) rates contained in the existing OATT are necessary to accurately reflect SMUD's cost of service; and

WHEREAS, in light of the adoption of Proposition 26 on November 2, 2010, which precludes certain new fees, levies or charges but is not retroactive as to local governments, this Board of Directors desires to maintain certain pre-Proposition 26 rates; this Board of Directors understands that Proposition 26 does not vitiate legislation adopted prior to November 3, 2010, and any changes in rates since this date are cost-justified under the analysis in the respective Chief Executive Officer and General Manager's Report and Recommendation on Open Access Transmission Tariff that supported the adoption of the rates; and

WHEREAS, the recommendation to increase SMUD's OATT rates in Schedule 1 and Schedule 2 are based on cost of service principles and reflect SMUD's cost increases to provide transmission service uniformly to all transmission customers; and

WHEREAS, this Board of Directors has carefully considered the OATT Report, and public comment and input from community meetings, public rate workshops, and noticed public hearings; and

WHEREAS, this Board of Directors finds that updating the existing OATT Schedule 1 and Schedule 2 rates with the proposed revised OATT Schedule 1 and Schedule 2 rates is reasonable, in the best interests of the public and SMUD's customers, and provides a net benefit to SMUD; **NOW, THEREFORE**,

**BE IT RESOLVED BY THE BOARD OF DIRECTORS
OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT:**

Section 1. Effective September 17, 2021, SMUD's existing Open Access Transmission Tariff (OATT) Schedule 1 and Schedule 2 rates shall be revised and superseded by the revised OATT Schedule 1 rate of \$361.72 per MW of reserved capacity per month and revised Schedule 2 rate of \$80.38 per MW of reserved capacity per month (attached as Attachments ____ and ____). The other Schedule 1 and Schedule 2 rates are multiples of the monthly values, and these are updated accordingly as shown in Attachment ____ and ____.

Section 2. Environmental Assessment

1.0 Section 21080(b)(8) of the California Public Resources Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purpose of:

- (A) meeting operating expenses, including employee wage rates and fringe benefits;
- (B) purchasing or leasing supplies, equipment, or materials;
- (C) meeting financial reserve needs and requirements;
- (D) obtaining funds for capital projects necessary to maintain service within existing service areas;

2.0 This Board of Directors finds and declares that the proposed action will have no immediate revenue impact to SMUD since these rates are only used for incidental wholesale transmission sales, and reflects the reasonable costs to SMUD of providing transmission service under the OATT; and that no amount of revenue obtained from this rate increase will be used for any other purpose. Therefore, the proposed action to approve a revised OATT Schedule 1 and Schedule 2 rates with an effective implementation date of September 17, 2021, is for the purposes set forth in Sections 21080(b)(8)(A) through (D) of the California Public Resource Code. Therefore, this rate action is exempt from the requirements of CEQA. This finding is based upon information contained in the OATT Report.

Section 3. The Chief Executive Officer and General Manager, or his or her designee, is authorized to make non-substantive revisions to OATT Schedule 1 and OATT Schedule 2.

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Schedule 1: Scheduling, System Control and Dispatch Service

This service is required to schedule the movement of power through, out of, within, or into a Balancing Authority Area. This service can be provided only by the operator of the Balancing Authority Area in which the transmission facilities used for transmission service are located. Scheduling, System Control and Dispatch Service is to be provided directly by the Transmission Provider (if the Transmission Provider is the Balancing Authority Area operator) or indirectly by the Transmission Provider making arrangements with the Balancing Authority Area operator that performs this service for the Transmission Provider's Transmission System. The Transmission Customer must purchase this service from the Transmission Provider or the Balancing Authority Area operator. The charges for Scheduling, System Control and Dispatch Service are to be based on the rates set forth below. To the extent the Balancing Authority Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Balancing Authority Area operator.

- 1) Yearly delivery: \$4,340.62/MW of Reserved Capacity per year.
- 2) Monthly delivery: \$361.72/MW of Reserved Capacity per month.
- 3) Weekly delivery: \$83.47/MW of Reserved Capacity per week.
- 4) Daily delivery: \$16.69/MW of Reserved Capacity per day.
- 5) Hourly delivery: \$1.0434/MW of Reserved Capacity per hour.

Schedule 2: Reactive Supply and Voltage Control from Generation or Other Sources Service

In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities and non-generation resources capable of providing this service that are under the control of the Balancing Authority Area operator are operated to produce (or absorb) reactive power. Thus, Reactive Supply and Voltage Control from Generation or Other Sources Service must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of Reactive Supply and Voltage Control from Generation or Other Sources Service that must be supplied with respect to the Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider.

Reactive Supply and Voltage Control from Generation or Other Sources Service is to be provided directly by the Transmission Provider (if the Transmission Provider is the Balancing Authority Area operator) or indirectly by the Transmission Provider making arrangements with the Balancing Authority Area operator that performs this service for the Transmission Provider's Transmission System. The Transmission Customer must purchase this service from the Transmission Provider or the Balancing Authority Area operator. The charges for such service will be based on the rates set forth below. To the extent the Balancing Authority Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by the Balancing Authority Area operator.

The Transmission Customer shall compensate the Transmission Provider each month up to the sum of the applicable charges set forth below:

Reactive Supply and Voltage Control from Generation Sources Service for Network Integration Service Customers under Part III of the Tariff:

\$110.21/MW per month times the Transmission Customer's monthly coincident peak demand.

Reactive Supply and Voltage Control from Generation Sources Service for Point-to-Point Transmission Customers under Part II of the Tariff:

- 1) Yearly delivery: \$964.52/MW of Reserved Capacity per year.
- 2) Monthly delivery: \$80.38/MW of Reserved Capacity per month.
- 3) Weekly delivery: \$18.55/MW of Reserved Capacity per week.
- 4) Daily delivery: \$3.71/MW of Reserved Capacity per day.

5) Hourly delivery: \$0.2319/MW of Reserved Capacity per hour.

The total charge for Reactive Supply and Voltage Control from Generation Sources Service in any day, pursuant to a reservation for Hourly delivery, shall not exceed the rate specified in section (4) above times the highest amount in Megawatts of Reserved Capacity in any hour during such day. In addition, the total charge for Reactive Supply and Voltage Control from Generation Sources Service in any week, pursuant to a reservation for Hourly or Daily delivery, shall not exceed the rate specified in section (3) above times the highest amount in Megawatts of Reserved Capacity in any hour or day during such week.