

Board Energy Resources & Customer Services Committee Meeting and Special SMUD Board of Directors Meeting

Date: Wednesday, October 19, 2022

Time: Scheduled to begin at 5:30 p.m.

Location: Virtual Meeting (online)

AGENDA BOARD ENERGY RESOURCES & CUSTOMER SERVICES COMMITTEE MEETING AND SPECIAL SMUD BOARD OF DIRECTORS MEETING

Wednesday, October 19, 2022

Scheduled to begin at 5:30 p.m.

**Zoom Webinar Link: [Join Board Energy Resources & Customer Services
Committee Meeting Here](#)**

Webinar/Meeting ID: 161 606 4585

Passcode: 567574

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

Pursuant to Government Code section 54953(e) and the Emergency Board Meeting Procedures adopted by the SMUD Board of Directors, the regular Board meeting and other public meetings are currently conducted solely via virtual (online/teleconference) meeting to align with state, local, and federal guidelines 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 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.**

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 Committee 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 Committee Chair may read comments for items on the agenda into the record, in his 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.

This Committee meeting is noticed as a joint meeting with the Board of Directors for the purpose of compliance with the Brown Act. In order to preserve the function of the Committee as advisory to the Board, members of the Board may attend and participate in the discussions, but no Board action will be taken. The Energy Resources & Customer Services Committee will review, discuss and provide the Committee's recommendation on the following:

DISCUSSION ITEMS

1. Steve Lins Initiate consideration of two new federal standards in accordance with the **Public Utility Regulatory Policies Act of 1978 (PURPA)**: Demand-Response Practices (Section 111(d)(20)) and Electric Vehicle Charging Programs (Section 111(d)(21)).
Presentation: 3 minutes
Discussion: 5 minutes
2. Ellias van Ekelenburg Accept the monitoring report for **Strategic Direction SD-7, Environmental Leadership**.
Presentation: 15 minutes
Discussion: 15 minutes
3. Bryan Swann Accept the monitoring report for **Strategic Direction SD-9, Resource Planning**.
Presentation: 20 minutes
Discussion: 15 minutes

INFORMATIONAL ITEMS

4. Public Comment
5. Gregg Fishman Summary of Committee Direction.
Discussion: 1 minute

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 Committee 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 Committee Chair may read the comments into the record, in his discretion, based upon such factors as the length of the agenda or the number of email comments received. Comments will be provided to the Board and placed into the record of the Committee 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.

SSS No. LEG 2022-0135

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date
ERCS – 10/19/22
Board Meeting Date
October 20, 2022

TO				TO			
1.	Steve Lins			6.			
2.	Frankie McDermott			7.			
3.	Brandy Bolden			8.			
4.	Lora Anguay			9.	Legal		
5.	Suresh Kotha			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) Andrew Meditz				DEPARTMENT Legal Department			
				MAIL STOP B406		EXT. 6124	
						DATE SENT 09/23/22	

NARRATIVE:

Requested Action: Initiate consideration of two new federal standards in accordance with the Public Utility Regulatory Policies Act of 1978 (PURPA): Demand-Response Practices (Section 111(d)(20)) and Electric Vehicle Charging Programs (Section 111(d)(21)).

Summary: The Infrastructure Investment and Jobs Act of 2021 (IIJA) enacted by Congress and signed into law, amended PURPA to require Board consideration of two new federal standards. Sections 40104(a)(1) and 40431(a) of the IIJA adds Sections 111(d)(20) and 111(d)(21) to PURPA. As part of the PURPA administrative process, SMUD must commence consideration of the standards by November 15, 2022, and hold a future public hearing to consider each of the proposed standards. The Board is not required to adopt the standards but is required to consider and make findings on or before November 15, 2023.

Board Policy: Strategic Direction SD-7, Environmental Leadership; Strategic Direction SD-9, Resource Planning; Strategic Direction SD-11, Public Power Business Model; Governance Process GP-3, Board Job Description – j) Take such other actions as may be required by law.

Benefits: Compliance with PURPA and Board consideration of federal standards

Cost/Budgeted: N/A

Alternatives: None

Affected Parties: N/A

Coordination: Legal, Demand Response and Electric Vehicle program staff, Rates/Pricing Dept.

Presenter: Steve Lins, Deputy General Counsel and Director of Government Affairs

Additional Links:

SUBJECT

Public Utility Regulatory Policies Act (PURPA) Standards

ITEM NO. (FOR LEGAL USE ONLY)

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SSS No.
E,S RES 22-04

BOARD AGENDA ITEM STAFFING SUMMARY SHEET

Committee Meeting & Date ERCS – 10/19/22
Board Meeting Date October 20, 2022

TO				TO						
1.	Claire Rogers			6.	Suresh Kotha					
2.	Frankie McDermott			7.	Lora Anguay					
3.	Jennifer Davidson			8.						
4.	Brandy Bolden			9.	Legal					
5.	Farres Everly			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) Ellias van Ekelenburg				DEPARTMENT Env, Safety, and Real Estate Services				MAIL STOP B209	EXT. 7475	DATE SENT 9/26/2022

NARRATIVE:	
Requested Action:	Accept the monitoring report for Strategic Direction SD-7, Environmental Leadership.
Summary:	The purpose of this meeting is to facilitate a discussion with the SMUD Board of Directors on Strategic Direction SD-7, Environmental Leadership (SD-7). The presentation will briefly summarize SMUD's internal and external environmental programs and initiatives that promote environmental leadership.
Board Policy: (Number & Title)	Strategic Direction SD-7, Environmental Leadership
Benefits:	Clarification of environmental leadership, as defined in SD-7, to better guide SMUD staff's interpretation and actions to fulfill this directive.
Cost/Budgeted:	N/A
Alternatives:	N/A
Affected Parties:	SMUD customers and employees
Coordination:	SMUD Environmental Services, Resource Planning, and Energy Strategy, Resource, & Development, Sustainable Communities
Presenter:	Ellias van Ekelenburg, Director, Environmental, Safety & Real Estate Services

Additional Links:

SUBJECT	Board Monitoring: SD-7, Environmental Leadership	ITEM NO. (FOR LEGAL USE ONLY)
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ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: October 5, 2022

FROM: Claire Rogers *CR 10/5/22*

**SUBJECT: Audit Report No. 28007431
Board Monitoring Report; SD-7: Environmental Leadership**

Audit and Quality Services (AQS) received the SD-7 *Environmental Leadership* 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-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 2021 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 starting our Land Acknowledgement Statement. 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 (2015-2020 SMUD GHG Emissions Trends), Appendix C (Sustainable Communities), and Appendix D (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 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 bring 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 2021, GHG emissions were approximately 2.425 million metric tons carbon dioxide equivalent (CO₂e)^[1]. This is an increase of just over 500 thousand metric tons from 2020 emissions; a trend going back to 2015 (which was an especially severe drought year) can be found in Appendix B. Fluctuations in total emissions year-to-year are primarily attributable to hydroelectricity production and natural gas contract rates. Specifically for 2021, amidst historic drought conditions, there was a significant increase in the amount of unspecified power purchased, due to a nearly 900 GWh shortfall in total hydro generation from 2020 to 2021. Another significant driver of emissions was market purchases. In the future, as we purchase greater quantities of lower emissions-intensity power, we can expect those emissions to decrease. 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.

A breakdown of emissions by JPAs, and power purchases, with comparisons between 2020 and 2021 can be found in Appendix B.

SMUD uses or supplements the use of biofuels at its thermal power plants to reduce our carbon compliance obligation and we generated approximately 163 GWh of power from biofuels in 2021. Emissions from biofuels are typically considered "carbon-neutral" under several GHG reporting protocols including California's Cap-and-Trade Program."

CDP

SMUD was recognized for our leadership in corporate sustainability by global environmental non-profit CDP, attaining leadership level for 2 straight years and securing an A- on our 2021 disclosure. SMUD was recognized for its actions to cut greenhouse gas 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. Through significant demonstrable action on climate, SMUD is leading on environmental ambition, action, and transparency worldwide.

^[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.

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 2021, we received no NOVs or similar citations that include civil and/or criminal penalties.

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 \$11.4 million into this initiative, which takes a boots-on-the-ground approach to tackle issues plaguing our community, while creating an inclusive, clean-energy economy for all communities, with a special emphasis on those in historically under-resourced areas. We rely on grassroots community partnerships and projects to ensure better social well-being, environmental, economic, and mobility outcomes. 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 C.

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 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 proposed project's potential to worsen existing adverse environmental and public health conditions is evaluated to determine if it would negatively impact the local community. If so, community enhancements are proposed to lessen any negative impacts as part of our CEQA process. Each of our CEQA documents that started in 2021 included an EJ section and none of these projects were found to worsen existing adverse environmental and public health conditions.

Sacramento Tree Foundation (STF) Sacramento Shade Program

In 2021, the STF distributed 11,628 trees as part of its Sacramento Shade program serving 3,567 customers (1,551 or 43% in disadvantaged communities). A total of 590 of the trees were planted at public sites such as schools and parks, and 3,454 (30%) 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 25,770.82 metric tons. To better understand issues related to tree planting and care, STF NeighborWoods organizers actively engage residents to help resolve tree planting impediments.

Land Acknowledgment Statement

The SMUD Station H Project mitigation efforts highlighted new opportunity areas including meaningful consultation with local Tribes. SMUD staff recognized that it was important to build deeper relationships with local Tribes and take steps beyond what is

required by CEQA and AB52. Recommendations to prepare a Land Acknowledgement Statement came both from SMUD's Board of Directors and other local Native Americans. In 2021, SMUD staff started outlining the process for Native American culture and issues education, began drafting a Land Acknowledgment Statement as written affirmation of external relationship-building with local Native nations and their citizens, and identifying pathways for ongoing education and reconciliation.

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 430 planned overhead and underground electrical infrastructure projects in 2021, which is a 39% increase from the number of projects review in 2020. Avoidance and minimization measures (AMMs) were prescribed for 61 projects to reduce impacts on sensitive biological resources and the risk of NOVs. 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.

Electric lawn mowers for customers; equipment electrification

SMUD partnered with the Sacramento Metropolitan Air Quality Management District (SMAQMD) to launch the Electric Lawn Mower Pilot Program, which provided rebates to help our residential customers make the transition from gas-powered lawn mowers to zero-emission electric ones. The pilot ran from October – November 2021 and 150 customers participated, of which 42 were EAPR customers. Rebates totaled \$26,575, with SMUD providing \$4,200 (\$100 for each EAPR customer) and SMAQMD providing the rest.

Internally, SMUD has been replacing gas/diesel-powered equipment with equivalent electric/battery-powered tools where they are available from the market, including drills, cable cutters, pole saws and top handle chainsaws, hedge trimmers and skill saws. The Facilities team has been researching the use of battery- and electric-powered landscaping equipment and working with a local vendor to evaluate future uses of a battery-powered commercial lawn mower. This year, an all-electric four-wheel drive tractor was purchased for Facilities' use.

Financial Successes

Successful Soil Reuse- In 2021, SMUD diverted 30,254 cubic yards of soil from being disposed at various landfills for an approximate savings of \$2.8 million. All soil was

tested and verified to meet acceptable reuse criteria at either SMUD's North City Landfill or the Downtown Railyards Venture property. SMUD's new soil reuse program benefits are twofold: 1) avoiding clean soil purchases and soil disposal costs, while 2) avoiding trucking emissions associated with the transportation of these soils throughout the region and state.

North City CalRecycle Grant Awarded- Again in 2021, SMUD successfully secured a second \$750,000 CalRecycle grant. This grant will be used to significantly offset the construction cost of the North City Landfill Cap (estimated to be under \$5 million).

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 (12.4% electric) as well as our region, which is challenging due to supply chain constraints (including chip availability) and limited availability of electric heavy-duty trucks and construction equipment.

We continue to expend considerable resources on numerous, complicated environmental remediation projects (e.g., 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 ten golden eagle fatalities, we are approaching the 12 eagle incidents authorized under the permit. Operational modifications, including standing curtailment of 19 wind turbines were implemented during Q4 2021. We have implemented land management actions to reduce the attractiveness of the site to eagles. We are coordinating with the U.S. Fish and Wildlife Service on a revised Eagle Conservation Plan and requesting a permit amendment that would increase the amount of take authorized under the Permit. We are also applying for a new 30-year permit that would be effective after the current permit expires in 2024.

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. 2015-2020 SMUD Greenhouse Gas Emissions Trends
- C. Sustainable Communities
- D. Glossary of Acronyms

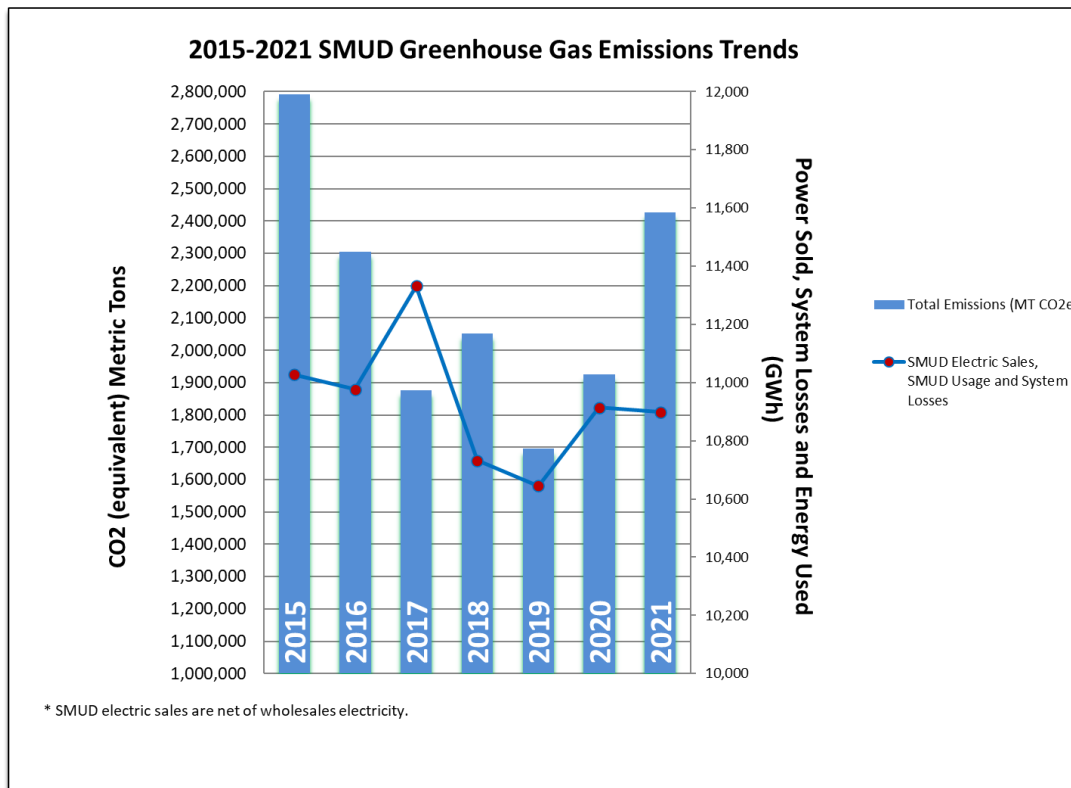
Appendix A

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; Station H; Solano 4; Workflow Integration; Wildfire Mitigation Plan; Partnership with Sacramento Tree Foundation (11,628 trees distributed to customers in 2021 with 43% in disadvantaged communities); SMUD Green Team; 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; Waste diversion rate of 77.11%; Asset recovery program for used oil, e-waste, transformers, etc.
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); Solano 4; ESPP; CA Clean Air Day.
C) SMUD will promote the efficient use of energy by our customers.	Greenergy [®] ; SolarShares [®] ; Energy Assistance Program Rate (EAPR); home electricity reports; SMUD app; Incentives, rebates, and loans; web tools; educational opportunities for customers; SD-5 (Customer Relations); SD-13 (Economic Development); SD-15 (Outreach and Communication); Sustainable Communities program; SMUD MoSAC.
D) SMUD will advance the electrification of vehicles, buildings, and equipment	California Mobility Center; Fleet Electrification; Building Electrification; Sustainable Communities program; Lawn equipment electrification; Incentives, rebates, and loans.
E) SMUD will attract and build partnerships with customers, communities, policy makers, the private sector, and other stakeholders.	226 Sustainable Communities partnerships; Land Acknowledgement Statement, Electric Power Research Institute (EPRI); Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA); Partnership with Sacramento Tree Foundation (11,628

	trees distributed to customers in 2021 with 43% in disadvantaged communities).
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Appendix B¹



Thermal Power Plant Greenhouse Gas Emissions			
Source	2020 MMT CO2e	2021 MMT CO2e	Percent Change
Thermal Emissions less any Cogen Sales			
CPP	1,337	1,473	10%
SCA	291	299	3%
SPA	248	282	14%
CVFA	105	111	6%
McClellan	2.72*	2.75	1%
Power Purchased and System Losses	269	495	84%
Net of Unspecified Market Purchases and Sales	-327	-238	-27%
Total	1,926	2,425	26%

*This 2020 value for McClellan also includes a nominal amount of emissions (2.06 MMT) from the Ivanpah solar facility; we are no longer accounting for it in this way starting 2021, since it is already included in the Power Purchased category.

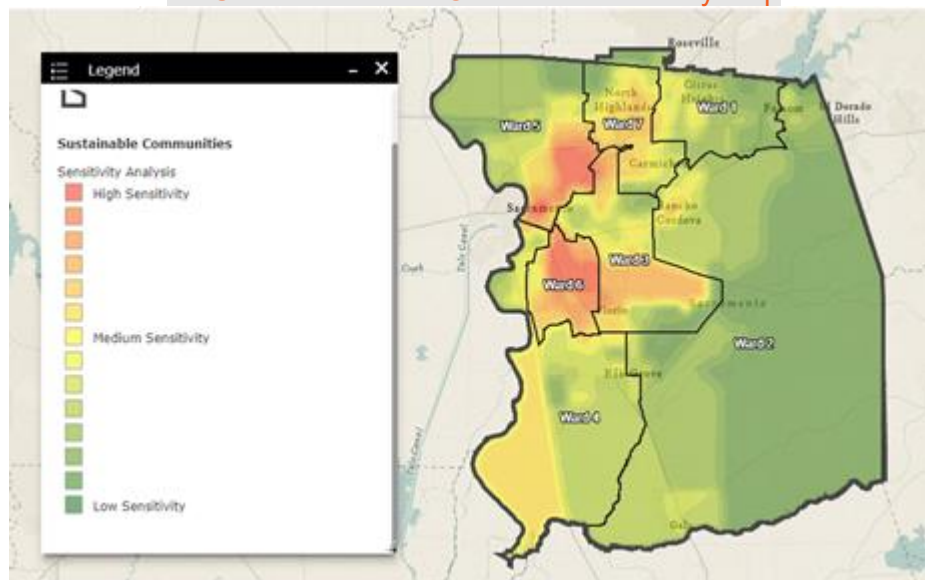
¹ Unlike SD-9, the emissions data in SD-7 is not normalized.

Appendix C

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,

<https://sdgs.un.org/goals>



Appendix D

List of Acronyms

CARB	California Air Resources Board
CDP	Carbon Disclosure Project (formerly)
CEQA	California Environmental Quality Act
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

SSS No.
RS 22-006

BOARD AGENDA ITEM STAFFING SUMMARY SHEET

Committee Meeting & Date ERCS - 10/19/22
Board Meeting Date October 20, 2022

TO				TO			
1.	Bryan Swann			6.	Lora Anguay		
2.	Claire Rogers			7.	Suresh Kotha		
3.	Scott Martin			8.			
4.	Frankie McDermott			9.	Legal		
5.	Brandy Bolden			10.	CEO & General Manager		
Consent Calendar	X	Yes		No (If no, schedule a dry run presentation.)	Budgeted	X	Yes
FROM (IPR)				DEPARTMENT			
Sara Elsevier				Resource Strategy			
				MAIL STOP	EXT.	DATE SENT	
				B205	5056	09/21/2022	

NARRATIVE:

Requested Action: Accept the monitoring report for **Strategic Direction SD-9, Resource Planning**.

Summary: Annual SD-9 Resource Planning Monitoring Report for achievements in 2021.

Board Policy: Meets annual monitoring requirement for SD-9 (Resource Planning) providing SMUD's progress towards key resource planning objectives including progress towards our goals focused on greenhouse gas reduction, renewable portfolio standard (RPS), energy efficiency (EE), building electrification (EB), transportation electrification (TE), equitable offerings for underserved communities, and support of clean distributed energy resources through programs.

Benefits: Provide a status report of 2021 achievements to the Board members on meeting our core resource planning objectives contained in Strategic Direction SD-9, Resource Planning.

Cost/Budgeted: N/A

Alternatives: N/A

Affected Parties: Customer and Community Services, Government Affairs, Customer Strategy, Enterprise Strategy, Communication, Marketing and Community Relations, Treasury Operations & Risk Management, Legal, Reliability Compliance, Energy Supply, Sustainable Communities, Customer Experience Delivery

Coordination: Resource Strategy

Presenter: Bryan Swann, Director, Resource Strategy

Additional Links:

SUBJECT	Annual SD-9 Resource Planning Monitoring Report	ITEM NO. (FOR LEGAL USE ONLY)
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ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

SACRAMENTO MUNICIPAL UTILITY DISTRICT

OFFICE MEMORANDUM

TO: Board of Directors

DATE: October 5, 2022

FROM: Claire Rogers *CR 10/5/22*

**SUBJECT: Audit Report No. 28007432
Board Monitoring Report; SD-9: Resource Planning**

Audit and Quality Services (AQS) received the SD-9 *Resource Planning* 2022 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 2022

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 adopted a Climate Emergency Resolution that calls on the Board to work towards carbon neutrality by 2030.

In 2021, the Board revised our SD-9 targets and put us on a path to eliminate GHGs from our power supply by 2030. Also, in April 2021, SMUD's Board approved our 2030 Zero Carbon Plan, our roadmap to eliminating GHGs from our electricity supply by 2030. Taken together, our progress will be measured against this plan with the objective of eliminating GHG emissions from our power plants as we develop new distributed energy resource business models, research emerging grid-scale carbon-free technologies, and expand our investments in proven clean technologies.

In 2021, our emissions were 2.425 million metric tons (MMt). Normalized GHG emissions, which represent our emissions under a typical weather year, were 1.845 MMt. We also met our 2021 RPS target of 35.75% renewables in 2021. As this report demonstrates, **in 2021, 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 GHGs 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 in support of our SD-9 goals and our 2030 Zero Carbon Plan; for more detailed project information see Appendix C – Detailed Project Descriptions.

As shown in Table 1, SMUD's GHG footprint in 2021, adjusted for weather and hydro conditions, was 1.845 MMt, which is on trajectory to our 2030 Zero Carbon goal. SMUD's main sources of GHG emissions were from SMUD's thermal power plants and market purchases.

Table 1: 2021 SD-9 Carbon Footprint & Near-term Targets

Source	Net Power (GWh)	CO2e Emissions (1000 t) ¹
Net Generation and Power Purchases	11,882	2,663
Wholesale	(983)	(238)
SMUD Electric Sales, SMUD Usage and System Losses Non-Normalized Total²	10,899	2,425
Adjustment for Normal Load		(122)
Adjustment for Normal Wind and Hydro		(304)
REC Banking Adjustment		(154)
SMUD Normalized Total (estimate)		1,845
2030 Target		0

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 and the health of ecosystems that support us all.

Proven Clean Technologies and Zero Emission Resource Development

We continue to add and plan new proven clean technologies, such as wind, geothermal, solar, and energy storage that will continue to reduce our GHG emissions, tracking with our 2030 Zero Carbon Plan. Staff continue to conduct procurement efforts, cultivate new resource development, and implement new ideas. In 2021, we added over 160 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

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.

² Emissions by individual thermal asset can be found in the 2021 SD-7 Report.

coming years. And in late 2021, SMUD released a request for developer proposals for solar plus battery projects in the northern portion of our service territory.

Although our goals are more ambitious than already aggressive state mandates, we continue to implement a renewable energy strategy that fulfills state RPS requirements. SMUD achieved our 2021 RPS target by serving 35.75% 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 voluntary renewable program choices. Last year SMUD delivered 949 GWh, 9.1% of retail sales, to customers participating in Greenergy and SolarShares. Our Greenergy program served more than 72,000 residential and commercial participants equal to 632 GWh and our Large Commercial SolarShares program met program expectations, delivering 317 GWh of renewable power to these customers. Our Neighborhood SolarShares program, approved by the CEC in early 2020, will be served from solar resources within SMUD's service territory. The first of those resources, Wildflower (13 MW), came online in December 2020. In 2021, 120 homes were completed by builders and started billing under the Neighborhood SolarShares program. The program delivered 64 MWh of local solar power to participating customers in 2021.

New Technology and Business Models

Using proven clean technology, we expect to be able to reduce our 2030 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 initial implementation to be completed in 2022.
- Work to integrate DERs in operations, distribution and the grid planning process is ongoing and will evolve based on our experience with our new load flexibility pilots.
- Support our load flexibility efforts by launching new pilots, including the storage virtual power plant, and expanding our EV managed charging and vehicle-to-grid demonstrations.

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 cost burdens of our low-income customers while ensuring equity in our program offerings.

Improving Equity for Under-Resourced Communities

SMUD's GHG 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. In 2021, SMUD began developing a Community Impact Strategy. This 2030 Zero Carbon Plan aligned stakeholder-informed strategy, to be completed in 2022, will underline our commitment to making meaningful investments in under-resourced communities to ensure their participation in a clean energy future. Thus far, strategy development has included community listening sessions and stakeholder feedback, detailed gap analysis of who we are serving, and identification of barriers to participation across customer segments.

Through a collaborative, community-based approach, SMUD identifies emerging zero carbon energy and electrification related jobs and skills and partners with community organizations and education entities to create training programs to position participants from under resourced communities to fill the projected need for workers in the clean energy industry and other emerging high wage careers.

- SMUD has partnered with GRID Alternatives to provide job readiness and technical training to almost 100 community participants to prepare them for careers in the clean mobility sector.

Energy Efficiency and Building and Vehicle Electrification

Our 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 2021, our energy efficiency and building electrification programs reduced emissions by 53,388 tCO₂ [Civic Carbon], equivalent to 6,817 additional all-electric homes.³ Our goal is to have these building electrification and efficiency programs reduce emissions by 365,000 t in 2030, the equivalent of electrifying 112,000 single family homes.

SMUD's vehicle electrification portfolio includes offerings in residential electric vehicle (EV) incentives, dealership incentives, residential outreach, commercial charger incentives, and commercial vehicle incentives. At the end of 2021, we had 23,576 EVs registered within SMUD's service territory, an increase of 5,599 registered vehicles⁴ and an estimated annual reduction of almost 26,000 t. 21,218 are residentially registered EVs.⁵ Our goal is to have these vehicle electrification programs reduce transportation emissions by 1,000,000 t in 2030, the equivalent of electrifying 288,000 vehicles.

B. 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 2021 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 2021, we awarded a program implementation contract for the residential My Energy Optimizer – Partner level offerings for smart thermostats and battery storage systems. Set to be launched in Summer 2022, this program is the first of SMUD's Virtual Power Plant initiatives, which includes a Critical Peak Pricing rate offering. Other planned initiatives for 2022 include launching the residential Managed EV charging pilot and the My Energy Optimizer – Partner+ program for battery storage (storage virtual power plant as mentioned above).

With our PowerDirect[®] program, commercial customers were notified ten times to curtail load; average load reduction of 4.29 MW to 8.54 MW across the duration of the events.⁶ Under our temperature dependent rates, two commercial customers were notified five times during the summer, 6.28 to 14.38 MW of load reduction was realized.⁷ Finally, our air conditioning load management program called Peak Corps, provides about 59 MW of resource adequacy capacity and remains an operational

³ The DER Cost Effectiveness Tool evaluates and accounts for DER program effectiveness, calculating gross annual emissions impact. It is reported in each year the "measure" is installed on the grid and within its useful life.

⁴ EPRI Vehicles in Operation (VIO) report

⁵ IBID.

⁶ NERC WebDADs report

⁷ NERC WebDADs report

resource to be used in case of an emergency. All together, our dispatchable programs provide an expected load shed range of 53.5 to 77.5 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 majority of our customers more time on the lower priced non-summer seasonal rate. A new optional residential Critical Peak Pricing rate was approved for implementation in early 2021. This rate is applicable to qualifying load flexibility programs that are being offered to support the 2030 Zero Carbon Plan, such as the My Energy Optimizer Partner offering mentioned above.

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 2021, we had almost 40,000 total customer-sited PV installations in SMUD's service territory and over 500 total customer-sited storage installations. During the year, 26 MW of customer sited solar PV was installed (about 5,500 systems) and almost 3.5 MW of commercial (about 170 systems). Additionally, 1.62 MW of residential customer-sited energy storage projects were installed or in progress, about 250 systems; 1 commercial system was installed (0.01 MW). In addition, SMUD's first utility-scale battery storage system, a 4 MW lithium-ion battery connected to our distribution system, became operational.

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.

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 t 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, the reduction of GHG emissions for serving retail load from its current state to zero carbon by 2030, is more aggressive than California's SB 100 trajectory, which requires that utilities meet electric demand with at least 60 percent eligible renewable resources by 2030.

Appendix B – Methodology Discussion

Normalization Adjustments

Emissions adjustments to SMUD's actual GHG 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 *increase* to account for higher-than-expected wind production and a *decrease* for using banked renewable energy credits (RECs). In 2021, 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, which *increased* our normalized SD-9 emissions in those years to account for these banked RECs. Using these banked RECs lowers SMUD's normalized emissions because any emissions impacts were realized at an earlier date, but not yet credited to SMUD. As SMUD utilizes its remaining REC surplus over the next few years and renewable procurement ramps up to meet the 2030 Zero Carbon Plan goals, which are expected to far exceed RPS obligations, SMUD plans to phase out REC normalization.

In 2021, a historic drought affected much of the Western United States, which resulted in lower hydropower generation across California and the Pacific Northwest (PNW). In previous years, short-term carbon-free power purchases from the PNW have greatly contributed to SMUD being below our SD-9 carbon goal the last several years, but we understood that our ability to take advantage of these resources was highly dependent upon water conditions in the PNW and thus availability. Due to these widespread drought conditions in 2021, which resulted in the reduced availability of low carbon and carbon-free resources from the PNW, SMUD was not able to purchase at the same level as previous years, which contributed to emissions increases relative to 2020.

Renewables Portfolio Standard (RPS)

State RPS law requires SMUD procure renewable generation of at least 60% of retail sales by 2030 as well as interim targets be achieved over several compliance periods⁸. In 2021, we achieved our, and the State's, RPS target of 35.75% with 3,485 GWh of eligible renewable energy.

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.

- 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 offer incentives 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 will help achieve 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. Possible examples include, integrating load flexibility program enrollment into our existing low-income weatherization program, which already provides a no-cost smart thermostat in most cases and/or creating a no-cost technology installation pathway for low-income homeowners or renters to participate in our virtual power plant program 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 trained over 800 people in a variety of skills to help them find higher paying, more secure jobs. At the same time, we renewed our focus on the jobs and skills that will help our community get to zero carbon.

As part of that effort, SMUD completed the first year of its inaugural Energy Careers Pathways training partnership with Grid Alternatives. The solar workforce program recruited individuals from under resourced communities and provided them four weeks of paid instruction; two weeks of online learning and two weeks of in-person instruction in a hands-on format. Upon graduation, participants

⁸ 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.

were matched with potential employers to demonstrate what they have learned by showcasing conduit bending, wired J-boxes, and more. Students also learned about the installation and importance of battery storage and EV charging infrastructure. The program closed the year with a total of 196 program applicants, 93 participants completing the initial 2-week online training, 52 participants completing the subsequent 2 week in-person training, and 28 job placements.

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 tools 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. These include our Sustainable Communities Resource Priorities Map, which we used as part of our 2030 Zero Carbon Plan work in 2021 to identify thermal power plants in high/moderately high sensitivity areas that should be targeted for emissions reductions and our internal Sustainable Communities Dashboard. This 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.

Proven Clean Technology Projects

Table 2 details new proven clean technology procurement activities.

Table 2: New Procurement and Project Development Status

Project Name	Type	MW	Status	Projected Online or Delivery Date
Rancho Seco 2	PV	160	Online	2021
Chili Bar	Small Hydro	7	Online	2021
Hedge Battery	Battery	4	Online	2022
NTUA Drew Solar	PV	100	Under Construction	2022
Northern California Geothermal	Geothermal	100	Procured	2023
Coyote Creek	PV	200	Planning	2024
	Battery	100		
Slough House	PV	50	Planning	2023
Country Acres	PV	340+	Planning	2024
	Battery	170+		
Solano 4	Wind	86	Pre-Construction	2024
Total		1,000+		

Additionally, in the near-term, we are exploring options to procure or develop additional zero emission resources, including local solar and storage, to help achieve our 2030 Zero Carbon Plan.

Energy Efficiency Programs

In 2021, accomplishments for SMUD's residential new construction program include 298 newly built all-electric homes and installed 781 gas-to-electric heat pump water heaters in existing homes, 1,392 gas-to-electric HVAC systems in existing homes, and 133 gas-to-electric induction cooktops in existing homes.

Below, in Table 3, is a summary of some of our 2021 energy efficiency and building electrification accomplishments, including offerings for our income eligible customers.

Table 3: 2021 Energy Efficiency and Building Electrification Accomplishments

Measures & Projects	Results
Commercial Projects Completed Complete Energy Solutions	60
Commercial Projects Through Express Energy Solutions	681
Custom Commercial Projects Completed	59
New Efficient Commercial Buildings Constructed	21
Multifamily Apartments Retrofitted (Electric To Electric)	136
Multifamily Apartments Retrofitted (Gas To Electric)	79
Efficient Induction Cooktops (Electric To Electric)	157
Efficient Induction Cooktops (Gas To Electric)	133
Energy Star Products Purchased through RPP Retailers	35,830
Advanced Power Strips Installed	1,936
Old Refrigerators Recycled	2,641
Residential Heat Pump Water Heaters Installed (Electric To Electric)	4
Residential Heat Pump Water Heaters Installed (Gas To Electric)	781
Residential HVAC Installations (Gas To Electric)	1,392
Residential Seal and Insulate Installations	427
All Electric New Homes Constructed	298
Income Eligible Energy Efficiency Bundles and Electrification	Results
Energy Efficiency Weatherization	1,998
Heat Pump Space Heating (Gas to Electric)	178
Heat Pump Water Heaters (Gas to Electric)	98
Induction Stoves (Gas to Electric)	19

Vehicle Electrification

The California Mobility Center applied for and received IRS tax exempt 501(c)(3) status in 2021. After securing a lease for its initial 25,000 square foot manufacturing and prototyping facility at Depot Park, CMC procured its initial baseline equipment and was commissioned in Q1 2021. The facility, called Ramp-Up-Factory (RUF) is operational with training suite installed. 15 service provider contracts were executed with additional consultants and strategic partners that continue to support the CMC and CMC clients.

In 2021, CMC expanded the Board from a Founders group of five to a broad-based Board of 16, with strong automotive sector representation. CMC developed its online, recruitment management tool to expand its membership campaign. By year-end, CMC reached a total of 39 members, with 98 representatives registered in the online portal. Additionally, CMC launched various membership committees, the Industry Advisory Council and a monthly CMC Thought Leadership webinar series.

CMC designed and developed materials for the organization's marketing and public relations initiatives; continually updated its rebranded website (www.californiamobilitycenter.org); and wrote/distributed eight press releases in 2021, reaching over 15,000 media industry views. Additionally, CMC appeared in over 213 industry and news articles and sponsored twelve industry events held in the US and internationally.

Lastly, the CMC workforce program has provided training in partnership with community-based organizations, adult learning centers and CSU Sacramento. The Workforce Pathways Partnerships

Program started in 2020 with a \$1.4 million CARES Act grant from the City of Sacramento. In 2021, CMC received a \$600,000 grant from California Workforce Development Board to advance jobs and training associated with the climate and technology impacted industries. CMC was able to assist 115 people in securing internships or employment through the Workforce Pathways Partnerships Program.

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 2021, SMUD's Drive Electric program continued to promote adoption of plug-in electric vehicles (PEV) through a special EV rate offering, launch of our "Charge@Home" residential EV charger purchase and circuit installation rebate in December, 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. At the end of 2021, 12,176 customers, approx. 60% of Residential EV households, participated in the EV rate credit (midnight to 6 AM EV charging discount). Moreover, through SMUD's funding of the statewide California Clean Fuel Reward program SMUD customers received 4,790 point of sale rebates on 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. The video received over 17,000 views between its August 2021 launch and the end of the year.

Other 2021 activities included:

- SMUD Commercial EV Program and partnership with California Electric Vehicle Infrastructure Project (CALeVIP) incentives included 242 Level 2 handles, 58 DC Fast Chargers and 26 vehicles incentivized. SMUD partnered with the California Energy Commission and the Center for Sustainable Energy on the California Electric Vehicle Infrastructure Project (CALeVIP) in Sacramento County to promote the installation of public level II and DC fast charging stations. The program stopped taking applications for new projects in October 2021, but installations will continue into 2022 and 2023. 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.
- Continued live online dealer EV sales training webinars as well as on-demand online training, in response to COVID, as an additional resource to enhance dealer certification as PlugStar certified dealers. Twenty-two dealers are participating in the program.
- Increased exposure to and participation in our "EV Concierge" service for SMUD customers through Plug in America's Electric Vehicle Support Program, which offers live one-on-one support answering questions on all things EV.
- Implemented our second EV auto dealership competition to encourage and incentivize EV sales and reward dealerships and their staff for increased EV promotion.
- Continued integral support of 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). Through this partnership, SMUD has provided a free installation of a home EV Charger for customers that participated in Clean Cars for All; we installed 131 in 2021.
- Facilitated the third *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.

Time-of-Day (TOD) Rates

Our residential customers reduced overall load in the range of 75-115 MW. 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 97% of customers on TOD rates.

Table 4: 2021 Results of TOD Implementation Compared to Pilot Projections

Benefits	Pilot projections	2021 Normal Weather
Carbon reduction (metric tons)	3K-5K	11.45K
Residential peak load reduction	75MW, or 5.8%	~75MW – 115MW, or 4-7%
Financial benefit	\$4M annually	\$11M estimated ⁹
Selection of TOD	96%	97%

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 2021 and beyond as part of our 2030 Zero Carbon Plan. Below are just a few of the projects that we explored in 2021; more information on our research and development work can be found in our annual Strategic Direction 10 (SD-10) Report.

- Carbon Reduction Projects for Zero Carbon Planning. Completed high level techno-economic assessments of proven and emerging clean technology expansion opportunities (wind, on-shore and off-shore; solar PV; geothermal; biomass/biogas for RNG), long duration storage technologies, carbon capture, renewable hydrogen and gas pipeline analysis. Results of these assessments will be used as information in our continuous planning efforts for our 2030 Zero Carbon Plan.
- Assessment of Alternative Clean Fuels. Completed assessment of sustainability, existence of supply/suppliers, price forecasts, market trends, and the economic/technical feasibility of alternative biofuels such as ethanol, biodiesel, renewable diesel, propane, RNG, and green hydrogen. RNG and green hydrogen were short listed for further deep dive assessments and considerations to decarbonize our natural gas power plants.
- Wind Resources in Northern CA. Assessed all available wind generation resource potentials in Northern California that can feasibly deliver to SMUD or the Balancing Authority of Northern California.
- Low-carbon Fuel Standard (LCFS) Electricity Pathways. 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. 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)

⁹ This calculation uses customer load adjusted for impacts of COVID 19.

Grant Funded Clean Energy Projects

- Hydrogen Blend Collaborative Research. Completed the literature review and technoeconomic analysis requirements for this pipeline hydrogen blending collaborative research. 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. 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.
- BestFit Innovative Charging Solutions. SMUD will partner with Electriphi, the project lead applicant, in collaboration with other key partners to demonstrate a cost-efficient and grid-friendly pathway for fleet electrification across diverse vehicle types. This project will accelerate V2G, offsetting what would otherwise be costs to SMUD.
- Blueprint for Medium & Heavy-Duty Zero-Emission Vehicle Infrastructure. Grant-funded project by the CEC to create a landmark regional blueprint plan to accelerate adoption of medium and heavy-duty Zero Emission Vehicles in Sacramento and West Sacramento. The plan will identify locations for charging and hydrogen refueling stations that will optimize existing grid capabilities, reducing implementation and operational costs while accommodating the needs of communities. The project also assesses workforce development needs to implement the plan's various elements and to ensure broad economic opportunity in the growing EV sector.

Distributed Generation Studies

- 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.

Climate Change and Ecosystem Service Research Projects undertaken in 2021

These projects provide technical, economic, and policy expertise on climate change and biodiversity, assisting operations in identifying and addressing climate vulnerabilities, and creating opportunities for SMUD, customers and community partners to support climate neutrality and ecologically regenerative projects with a net positive impact.

- Began executing our multi-year 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, with partners the Electric Power Research Institute (EPRI), UC Davis Wild Energy Lab and the Xerces Society. This research is expected to continue until Fall 2025.
- Began development of a new Agrivoltaic research program proposal for integration with future utility scale solar projects in support of regional food security.
- Continued executing American Public Power Association Demonstration of Energy and Efficiency Development (APPA-DEED) grant-funded field assessment and reporting on two new grocery store installations funded by our award-winning Natural Refrigerant Incentive Program, which are expected to deliver over 10,000 t CO2e reduction relative to conventional systems.

Voluntary Renewable Energy Programs

Greenenergy is a voluntary green pricing program that gives customers the option to receive carbon free electricity generated in and delivered to California 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

Greenenergy, their usage is tracked according to their enrollment level. SMUD uses the proceeds from this program to purchase renewable/carbon free power or renewable energy credits to supply participants from generators located within California. These purchases are in addition to our RPS requirements.

Customer-side Solar and Storage Status

In 2016, SMUD achieved our SB1 Program funding goals for residential and commercial solar installations. Currently, there are remaining SB1 funded solar projects still under development. Additionally, residential and commercial solar systems are being installed under our net-energy metering tariff. In 2021, nearly 30 MW of new customer solar was installed in SMUD service territory under net-energy metering agreements. Table 5 summarizes solar installation data through 2021 and Table 6 summarizes our cumulative customer storage installations through 2021.

Table 5: Installed Customer PV¹⁰

	Residential		Commercial		Totals	
	Installed Systems	MW	Installed Systems	MW	Installed Systems	MW
2021	5,535	26.56	171	3.36	5,706	29.92
Totals	39,071	174.14	888	108.38	39,959	282.52

Table 6: Cumulative Customer Storage Installations

	Residential		Commercial		Totals	
	Installed Systems	MW	Installed Systems	MW	Installed Systems	MW
2021	246	1.62	1	0.01	247	1.62
Totals	504	3.35	2	0.21	506	3.56

¹⁰ This table includes net-energy metering (NEM), Solar Smart, virtual net-energy metering (VNEM) installations, and projects funded with SB-1 dollars.

SSS No.
BOD 2021-025

BOARD AGENDA ITEM

STAFFING SUMMARY SHEET

Committee Meeting & Date
2022
Board Meeting Date
N/A

TO				TO									
1.	Frankie McDermott			6.									
2.	Brandy Bolden			7.									
3.	Lora Anguay			8.									
4.	Suresh Kotha			9.	Legal								
5.				10.	CEO & General Manager								
Consent Calendar			Yes	x	No If no, schedule a dry run presentation.		Budgeted		Yes		No (If no, explain in Cost/Budgeted section.)		
FROM (IPR) Gregg Fishman / Donna Lofton				DEPARTMENT Board Office				MAIL STOP B307		EXT. 5079		DATE SENT 12/21/2021	

NARRATIVE:

Requested Action: A summary of directives provided to staff during the committee meeting.

Summary: The Board requested an on-going opportunity to do a wrap up period at the end of each committee meeting to summarize various Board member suggestions and requests that were made at the meeting in an effort to make clear the will of the Board. The Policy Committee Chair will summarize Board member requests that come out of the committee presentations for this meeting.

Board Policy: GP-4 Agenda Planning states the Board will focus on the results the Board wants the organization to achieve.
(Number & Title)

Benefits: Having an agendaized opportunity to summarize the Board's requests and suggestions that arise during the committee meeting will help clarify what the will of the Board.

Cost/Budgeted: N/A

Alternatives: Not summarize the Board's requests at this meeting.

Affected Parties: Board of Directors and Executive Staff

Coordination: Donna Lofton, Special Assistant to the Board

Presenter: Gregg Fishman, ERCS Committee Chair

Additional Links:

SUBJECT	Summary Of Committee Direction	ITEM NO. (FOR LEGAL USE ONLY)
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ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.