

# Board of Directors Meeting Agenda

Date: May 20, 2021

Time: 5:00 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](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](mailto: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](mailto: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](mailto: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.

***May 20, 2021 – 5:00 p.m.***

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

**Webinar ID: 161 793 5390**

**Password: 933131**

**Phone Dial-in Number: 1-669-254-5252**

Call to Order.

a. Roll Call.

1. Approval of the Agenda.

2. Committee Chair Reports.

- a. Committee Chair report of May 11, 2021, Strategic Development Committee
- b. Committee Chair report of May 12, 2021, Policy Committee
- c. Committee Chair report of May 18, 2021, Finance and Audit Committee  
Present the Financial Statement for SMUD for the three-month period ended  
March 31, 2021, and financial results through April 30, 2021
- d. Committee Chair report of May 19, 2021, Energy Resources & Customer Services  
Committee

**Items 6 through 8 were reviewed by the May 12, 2021, Policy Committee. Items 9 and 10 were reviewed by the May 19, 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 April 16, 2021, through May 15, 2021.
4. Approval of the minutes of the regular meeting of April 15, 2021.
5. Approval of the minutes of the special meeting of April 28, 2021.
6. Adopt a resolution declaring the **Gerle Meadows** property is surplus land and, if sold to the **United States Forest Service**, exempt surplus land. **Policy Committee 5/12.**  
**(Gary King)**
7. Accept the monitoring report for **Strategic Direction SD-12, Ethics.** **Policy Committee 5/12. (Gary King)**
8. Accept the monitoring report for **Strategic Direction SD-8, Employee Relations.**  
**Policy Committee 5/12. (Gary King)**
9. Approve the sale of 2023 local **Resource Adequacy (RA)**, on behalf of **Valley Clean Energy (VCE)**, to the newly designated **Central Procurement Entity (CPE)**, **Pacific Gas & Electric (PG&E).** **Energy Resources & Customer Services Committee 5/19.**  
**(Jennifer Davidson)**

\* \* \* \* \*

**Discussion Calendar:**

10. Adopt the **California Environmental Quality Act (CEQA) Initial Study and Mitigated Negative Declaration (IS/MND)** for the **North City Landfill Closure Project (Project)**; adopt the **Mitigation Monitoring and Reporting Program**; and approve the **Project.** **Energy Resources & Customer Services Committee 5/19. (Gary King)**  
**Presenter: Kim Crawford**

\* \* \* \* \*



## **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: Building Leadership Talent

## **Summary of Board Direction**

\* \* \* \* \*

## **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 will be held virtually (online).***

May 18, 2021	Finance and Audit Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
May 19, 2021	Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
June 8, 2021	Strategic Development Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
June 9, 2021	Policy Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
June 15, 2021	Finance and Audit Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	5:30 p.m.
June 16, 2021	Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting	Virtual Meeting (online)	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 will be held virtually (online).***

June 17, 2021

Virtual Meeting (online)

5:30 p.m.

***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](mailto: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](mailto: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.***

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***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](mailto:Toni.Stelling@smud.org), or contact by phone at (916) 732-7143, no later than 48 hours before this virtual meeting.***



**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**OFFICE MEMORANDUM**

TO: Distribution

DATE: April 23, 2021  
ACC 21-012

FROM: Kathy Ketchum / Lisa Limcaco

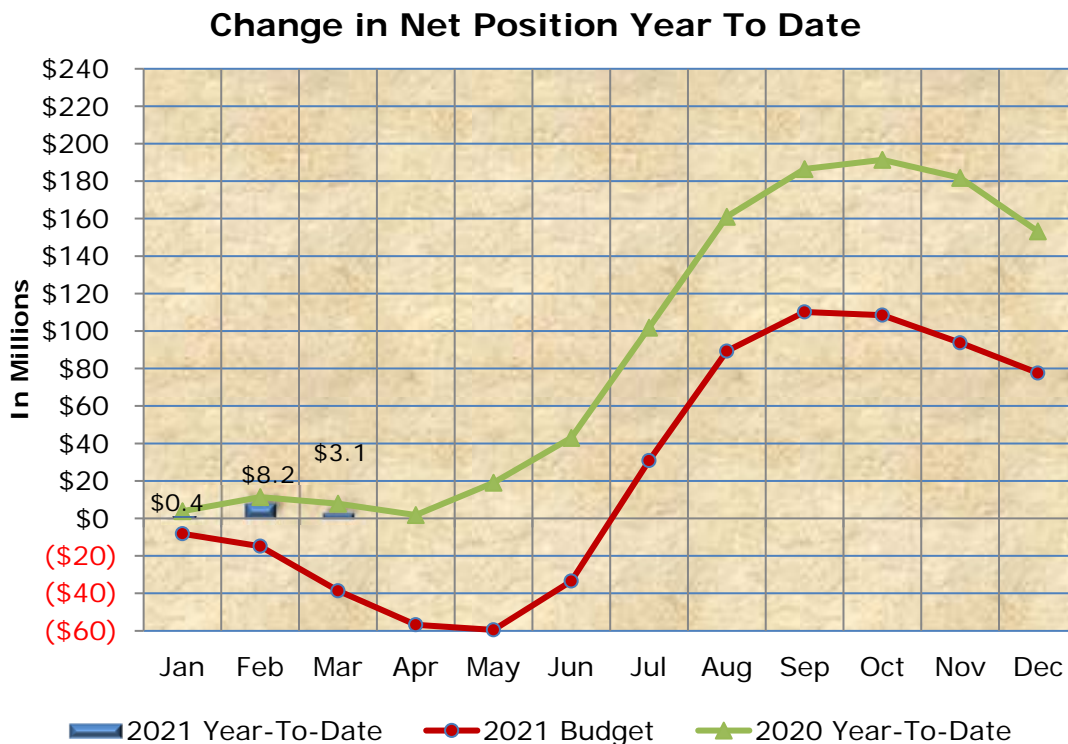
**SUBJECT: MARCH 2021 FINANCIAL RESULTS AND OPERATIONS DATA**

We are attaching the financial and operating reports for the three months of 2021. They include sales and generation statistics and other selected data.

The change in net position is a positive \$3.1 million compared to a negative \$38.6 million budget, resulting in a favorable variance of \$41.8 million.

We prepared these statements on the accrual basis of accounting, and they conform to generally accepted accounting principles. The bases for the budget amounts are:

- 1) Budgeted electric revenues are based on the Forecast of Revenues by the Pricing Department, adjusted for unbilled revenues; and
- 2) Budgeted operating expenses reflect the 2021 Budget approved by the Board of Directors on December 10, 2020.



**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**EXECUTIVE SUMMARY**  
**For the Three Months Ended March 31, 2021**

Net Position

- The change in net position is a positive \$3.1 million compared to a negative \$38.6 million budget, resulting in a favorable variance of \$41.8 million.

Revenues

- Revenues from sales to customers were \$298.9 million, which was \$5.8 million (2.0 percent) higher than planned.
  - The increase was primarily due to a shift in customer load shape compared to plan of \$9.0 million and higher customer usage of \$2.8 million, offset by a higher uncollectible provision of \$6.0 million (due to COVID-19 and the moratorium on electric shut offs).
- Revenues under the California Global Warming Solutions Act (Assembly Bill [AB] - 32) were \$3.6 million. This is due to carbon allowances sold through the state sanctioned quarterly auction.
- Low Carbon Fuel Standard (LCFS) revenues were \$4.0 million, which was \$2.6 million higher than planned. This is due to more LCFS credit sales than planned.
- Non-cash revenues transferred to the rate stabilization fund was \$7.6 million, of which \$4.0 million was for LCFS and \$3.6 million was for AB-32. Funds are deferred until SMUD has qualified program expenses (projects that reduce carbon emissions or electric vehicle programs) to recognize revenue.
- Non-cash revenues transferred from the rate stabilization fund was \$1.9 million, of which \$1.8 million was for revenues recognized from LCFS electric vehicle programs expenses.

Operating Expenses

- Purchased power expense of \$74.3 million, less surplus power sales of \$20.2 million, was \$54.1 million, which was \$1.9 million (3.7 percent) higher than planned.
  - Purchased power expense increased as a result of higher quantities purchased of \$8.5 million, offset by lower prices of \$6.6 million.
- SMUD's generation was lower by 123 GWh (7.6 percent).
  - Hydro generation was lower by 141 GWh (57.6 percent).
  - JPAs generation was lower by 9 GWh (0.7 percent).
- Production operations cost of \$85.5 million, less gas sales of \$39.7 million, was \$45.8 million, which was \$15.6 million (25.4 percent) lower than planned.
  - Fuel costs, net of gas sales, were \$17.0 million lower due primarily to lower fuel prices of \$18.0 million offset by higher fuel usage of \$1.0 million. Lower prices partially resulted from gas sales in February of \$7.0 million due to market conditions resulting from extreme weather in the east and south.
  - Other power generation expenses were \$1.1 million lower primarily due to timing differences between actual work and budgeted work.
  - Allowances expense were \$2.8 million higher, primarily due to recording the 2020 Calpine Sutter greenhouse gas allowance obligation of \$3.5 million.
- The "power margin", or sales to customers less cost of purchased power, production operations costs and gas hedges included in investment expense was \$198.9 million, which was \$19.5 million (10.9 percent) higher than planned. Power margin as a percentage of sales to customers was 66.6 percent, which was 5.3 percent higher than planned.
- All other operating expenses were \$184.9 million, which was \$20.7 million (10.1 percent) lower than planned.
  - Administrative and general expenses were \$15.3 million (33.7 percent) lower than planned. This is due to lower non-cash amortization of Governmental Accounting Standards Board (GASB) 75 Other Post-Employment Benefits amortization of \$3.9 million, GASB 68 Pension amortization of \$3.4 million, retiree medical expenses of \$2.0 million and lower miscellaneous general expenses of \$3.4 million (primarily due to lump sum merit awards budgeted of \$4.0 million; however, actuals of \$2.9 million were recorded to follow where work was performed), offset by higher labor of \$0.8 million.
  - Public good expenses were \$4.2 million (28.5 percent) lower than planned. This is primarily due to lower expenditures for research and development programs of \$3.3 million. This is due to \$2.5

million budgeted for programs and projects related to the IRP/Zero Carbon Plan, which is currently on hold until the plan is finalized.

- Transmission and distribution operating expenses were \$2.5 million (11.7 percent) lower than planned. This is mainly due to lower transmission-wheeling expense of \$2.0 million, primarily due to lower transmission expenses and losses.
- Transmission and distribution maintenance expenses were \$2.4 million (11.0 percent) higher than planned. This was mostly due to distribution maintenance for both station equipment and overhead lines of \$1.9 million, which resulted from higher labor to restore power after the large storm in late January.

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION**  
**For the Month Ended March 31, 2021**  
(thousands of dollars)

	<u>Actual</u>	<u>Budget</u>	<u>Over (Under)</u>	<u>Percent of Increase (Decrease)</u>
<b>OPERATING REVENUES</b>				
Sales to customers	\$ 99,291	\$ 97,135	\$ 2,156	2.2 %
Sales of surplus power	6,118	6,283	(165)	(2.6)
Sales of surplus gas	8,715	-	8,715	*
SB-1 revenue (deferral)/recognition, net	-	184	(184)	(100.0)
LCFS revenue	4,010	792	3,218	406.3
Other electric revenue	2,407	2,771	(364)	(13.1)
Revenue to rate stabilization fund	(4,010)	-	(4,010)	*
Revenue from rate stabilization fund	122	-	122	*
Total operating revenues	116,653	107,165	9,488	8.9
<b>OPERATING EXPENSES</b>				
Operations				
Purchased power	25,071	25,506	(435)	(1.7)
Production	24,991	20,551	4,440	21.6
Transmission and distribution	6,594	7,389	(795)	(10.8)
Customer accounts	4,429	5,106	(677)	(13.3)
Customer service and information	6,248	5,877	371	6.3
Administrative and general	10,719	19,290	(8,571)	(44.4)
Public good	3,830	7,492	(3,662)	(48.9)
Total operations	81,882	91,211	(9,329)	(10.2)
Maintenance				
Production	4,510	3,438	1,072	31.2
Transmission and distribution	7,760	7,914	(154)	(1.9)
Total maintenance	12,270	11,352	918	8.1
Depreciation	17,801	17,945	(144)	(0.8)
Amortization of regulatory asset	2,931	3,073	(142)	(4.6)
Total operating expenses	114,884	123,581	(8,697)	(7.0)
<b>OPERATING INCOME (LOSS)</b>	1,769	(16,416)	18,185	110.8
<b>NON-OPERATING REVENUES AND EXPENSES</b>				
Other revenues/(expenses)				
Interest income	688	507	181	35.7
Investment revenue (expense)	(184)	(188)	4	2.1
Other income (expense) - net	1,039	666	373	56.0
Unrealized holding gains (losses)	(225)	-	(225)	*
Revenue - CIAC	1,504	1,104	400	36.2
Total other revenues	2,822	2,089	733	35.1
Interest charges				
Interest on long-term debt	9,245	9,351	(106)	(1.1)
Interest on commercial paper	393	137	256	186.9
Total interest charges	9,638	9,488	150	1.6
<b>CHANGE IN NET POSITION</b>	\$ (5,047)	\$ (23,815)	\$ 18,768	78.8 %

\* Equals 1000% or greater.

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION**  
**For the Three Months Ended March 31, 2021**  
(thousands of dollars)

	<u>Actual</u>	<u>Budget</u>	<u>Over (Under)</u>	<u>Percent of Increase (Decrease)</u>
<b>OPERATING REVENUES</b>				
Sales to customers	\$ 298,870	\$ 293,034	\$ 5,836	2.0 %
Sales of surplus power	20,224	24,254	(4,030)	(16.6)
Sales of surplus gas	39,683	-	39,683	*
SB-1 revenue (deferral)/recognition, net	-	516	(516)	(100.0)
AB32 revenue	3,560	-	3,560	*
LCFS revenue	4,016	1,450	2,566	177.0
Other electric revenue	7,641	7,792	(151)	(1.9)
Revenue to rate stabilization fund	(7,576)	-	(7,576)	*
Revenue from rate stabilization fund	1,858	-	1,858	*
Total operating revenues	368,276	327,046	41,230	12.6
<b>OPERATING EXPENSES</b>				
Operations				
Purchased power	74,319	76,431	(2,112)	(2.8)
Production	85,524	61,454	24,070	39.2
Transmission and distribution	18,918	21,420	(2,502)	(11.7)
Customer accounts	13,304	14,669	(1,365)	(9.3)
Customer service and information	16,466	16,284	182	1.1
Administrative and general	30,176	45,502	(15,326)	(33.7)
Public good	10,514	14,704	(4,190)	(28.5)
Total operations	249,221	250,464	(1,243)	(0.5)
Maintenance				
Production	9,023	8,411	612	7.3
Transmission and distribution	24,343	21,930	2,413	11.0
Total maintenance	33,366	30,341	3,025	10.0
Depreciation	53,399	53,460	(61)	(0.1)
Amortization of regulatory asset	8,764	9,218	(454)	(4.9)
Total operating expenses	344,750	343,483	1,267	0.4
<b>OPERATING INCOME (LOSS)</b>	23,526	(16,437)	39,963	(243.1)
<b>NON-OPERATING REVENUES AND EXPENSES</b>				
Other revenues/(expenses)				
Interest income	2,260	1,499	761	50.8
Investment revenue (expense)	(558)	(564)	6	1.1
Other income (expense) - net	2,678	2,005	673	33.6
Unrealized holding gains (losses)	(714)	-	(714)	*
Revenue - CIAC	4,498	3,312	1,186	35.8
Total other revenues	8,164	6,252	1,912	30.6
Interest charges				
Interest on long-term debt	27,748	28,053	(305)	(1.1)
Interest on commercial paper	805	410	395	96.3
Total interest charges	28,553	28,463	90	0.3
<b>CHANGE IN NET POSITION</b>	\$ 3,137	\$ (38,648)	\$ 41,785	108.1 %

\* Equals 1000% or greater.



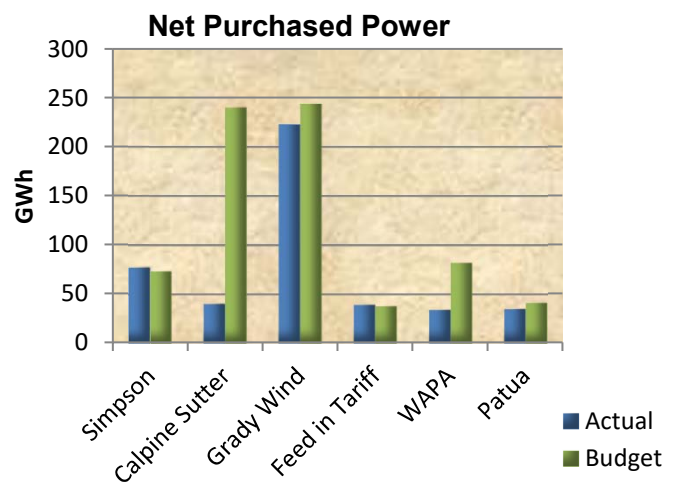
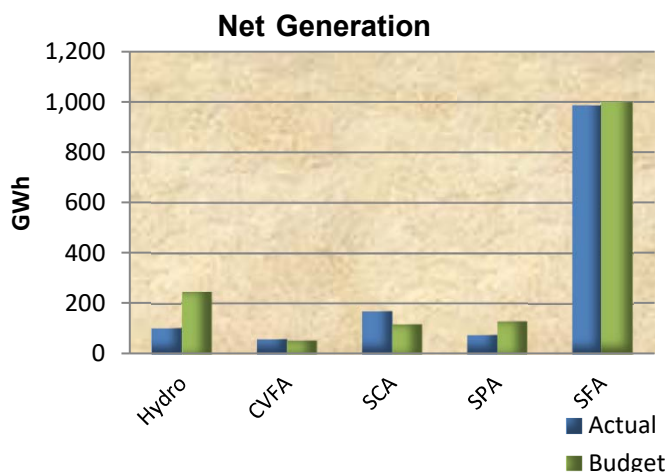
**SACRAMENTO MUNICIPAL UTILITY DISTRICT  
SOURCES AND USES OF ENERGY - COMPARED TO BUDGET  
For the Period Ended March 31, 2021**

Sources of Energy (GWh)	Month		Increase (Decrease)	Year-to-Date		Increase (Decrease)
	Actual	Budget	Percentage	Actual	Budget	Percentage
Net Generated						
Hydro	41	120	(65.8) %	104	245	(57.6) %
Carson Ice (CVFA)	11	2	450.0	59	54	9.3
Procter & Gamble (SCA)	61	31	96.8	168	117	43.6
Campbell Soup Project (SPA)	37	11	236.4	76	129	(41.1)
SMUD Financing Authority (SFA)	293	250	17.2	986	998	(1.2)
Other	43	33	30.3	102	75	36.0
Total net generation	486	447	8.7	1,495	1,618	(7.6)
Purchased Power less transmission losses:						
Avangrid	5	4	25.0	13	10	30.0
Calpine Sutter	-	-	*	40	240	(83.3)
Feed in Tariff	18	18	0.0	39	38	2.6
Grady Wind	87	84	3.6	223	244	(8.6)
Great Valley Solar	15	15	0.0	34	31	9.7
Kiefer - Greenergy	9	10	(10.0)	27	28	(3.6)
Patua	13	14	(7.1)	35	41	(14.6)
Rancho Seco PV II	29	29	0.0	61	61	0.0
Simpson	27	30	(10.0)	77	73	5.5
WAPA	22	36	(38.9)	34	82	(58.5)
WSPP and other	261	246	6.1	757	428	76.9
Other long term power	26	33	(21.2)	72	89	(19.1)
Total net purchases	512	519	(1.3)	1,412	1,365	3.4
Total sources of energy	998	966	3.3	2,907	2,983	(2.5)

**Uses of energy:**

SMUD electric sales and usage	768	749	2.5	2,301	2,275	1.1
Surplus power sales	205	182	12.6	500	582	(14.1)
System losses	25	35	(28.6)	106	126	(15.9)
<b>Total uses of energy</b>	<b>998</b>	<b>966</b>	<b>3.3 %</b>	<b>2,907</b>	<b>2,983</b>	<b>(2.5) %</b>

\* Change equals 1000% or more.



Net generation is lower than budget for the three-month period.

- Hydro generation is lower than planned (57.6 percent).
- JPA generation is lower than planned (0.7 percent).

Purchased power, less surplus power sales, is higher than plan (16.5 percent).

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**STATEMENTS OF NET POSITION**  
**March 31, 2021 and 2020**  
**(thousands of dollars)**

**ASSETS**

								<u>Total</u>	
	SMUD	CVFA	SCA	SFA	SPA	NCEA	NCGA #1	2021	2020
<b>ELECTRIC UTILITY PLANT</b>									
Plant in service, original cost	\$ 5,455,792	\$ 153,579	\$ 197,578	\$ 390,508	\$ 208,220	\$ -	\$ -	\$ 6,405,677	\$ 6,216,418
Less accumulated depreciation	2,558,936	124,304	151,095	187,379	162,486	-	-	3,184,200	2,995,833
Plant in service - net	2,896,856	29,275	46,483	203,129	45,734	-	-	3,221,477	3,220,585
Construction work in progress	504,440	423	601	38	748	-	-	506,250	419,630
Investment in Joint Power Agencies	305,097	-	-	-	-	-	-	22,653	15,799
Total electric utility plant - net	3,706,393	29,698	47,084	203,167	46,482	-	-	3,750,380	3,656,014
<b>RESTRICTED ASSETS</b>									
Revenue bond reserves	3,813	-	-	-	-	-	-	3,813	4,747
Restricted for payment of debt service	81,083	-	-	-	-	-	-	81,083	76,615
JPA funds	-	-	-	9,576	-	15,646	15,987	41,209	40,785
Nuclear decommissioning trust fund	8,873	-	-	-	-	-	-	8,873	8,836
Rate stabilization fund	174,444	-	-	-	-	-	-	174,444	141,770
Other funds	16,278	-	-	-	-	3,000	3,293	22,571	31,080
Due (to) from unrestricted funds (decommissioning)	(6,684)	-	-	-	-	-	-	(6,684)	(6,684)
Due (to) from restricted funds (decommissioning)	6,684	-	-	-	-	-	-	6,684	6,684
Less current portion	(91,811)	-	-	(9,576)	-	(18,556)	(19,280)	(139,223)	(132,561)
Total restricted assets	192,680	-	-	-	-	90	-	192,770	171,272
<b>CURRENT ASSETS</b>									
Cash, cash equivalents and investments									
Unrestricted	582,240	6,183	22,056	16,784	11,373	-	-	638,636	437,425
Unrestricted - collateral obligation	-	-	-	-	-	-	-	-	110
Restricted	91,811	-	-	9,576	-	18,556	19,280	139,223	132,561
Accounts receivable - net	212,684	4,203	8,683	25,273	5,251	-	2,381	182,347	180,391
Energy efficiency loans due within one year	2,691	-	-	-	-	-	-	2,691	3,021
Interest receivable	1,520	4	19	14	10	-	219	1,786	3,120
Regulatory costs to be recovered within one year	38,440	-	-	104	-	-	105	38,649	38,204
Derivative financial instruments maturing within in one year	5,306	-	-	-	-	-	-	5,306	5,959
Inventories	68,723	2,346	4,282	7,344	4,632	-	-	87,327	71,942
Prepaid gas to be delivered within one year	-	-	-	-	-	3,581	20,393	23,974	21,185
Prepayments and other	21,856	1,030	1,208	5,089	1,075	32	16	30,306	21,795
Total current assets	1,025,271	13,766	36,248	64,184	22,341	22,169	42,394	1,150,245	915,713
<b>NONCURRENT ASSETS</b>									
Regulatory costs for future recovery									
Decommissioning	80,639	-	-	-	-	-	-	80,639	74,192
Pension	353,315	-	-	-	-	-	-	353,315	370,342
OPEB	290,590	-	-	-	-	-	-	290,590	303,363
Bond Issues	-	-	-	861	-	-	550	1,411	1,621
Derivative financial instruments	5,717	-	-	-	-	-	-	5,717	8,592
Derivative financial instruments	10,893	-	-	-	-	-	-	10,893	7,645
Prepaid gas	-	-	-	-	-	531,606	154,404	686,010	709,984
Prepaid power and capacity	536	-	-	-	-	-	-	536	744
Energy efficiency loans - net	16,655	-	-	-	-	-	-	16,655	22,157
Other	52,268	1	1	3	1	-	82	52,356	46,891
Total noncurrent assets	810,613	1	1	864	1	531,606	155,036	1,498,122	1,545,531
<b>TOTAL ASSETS</b>	<b>\$ 5,734,957</b>	<b>\$ 43,465</b>	<b>\$ 83,334</b>	<b>\$ 268,214</b>	<b>\$ 68,824</b>	<b>\$ 553,865</b>	<b>\$ 197,430</b>	<b>\$ 6,591,517</b>	<b>\$ 6,288,530</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>									
Accumulated decrease in fair value of hedging derivatives	37,486	-	-	-	-	-	-	37,486	90,478
Deferred pension outflows	168,359	-	-	-	-	-	-	168,359	89,457
Deferred OPEB outflows	25,413	-	-	-	-	-	-	25,413	25,583
Deferred ARO outflows	-	1,647	-	-	-	-	-	1,647	1,874
Unamortized bond losses	12,608	-	-	1,741	-	-	-	14,349	17,887
<b>TOTAL DEFERRED OUTFLOWS OF RESOURCES</b>	<b>243,866</b>	<b>1,647</b>	<b>-</b>	<b>1,741</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>247,254</b>	<b>225,279</b>
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 5,978,823</b>	<b>\$ 45,112</b>	<b>\$ 83,334</b>	<b>\$ 269,955</b>	<b>\$ 68,824</b>	<b>\$ 553,865</b>	<b>\$ 197,430</b>	<b>\$ 6,838,771</b>	<b>\$ 6,513,809</b>

\*Numbers may not add across due to elimination entries not shown on this sheet.

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**STATEMENTS OF NET POSITION**  
**March 31, 2021 and 2020**  
**(thousands of dollars)**

LIABILITIES AND NET ASSETS

								Total	
	SMUD	CVFA	SCA	SFA	SPA	NCEA	NCGA #1	2021	2020
<b>LONG-TERM DEBT - NET</b>	\$ 2,417,498	\$ -	\$ -	\$ 112,551	\$ -	\$ 555,545	\$ 163,485	\$ 3,249,079	\$ 2,934,289
<b>CURRENT LIABILITIES</b>									
Commercial paper notes	-	-	-	-	-	-	-	-	50,000
Accounts payable	77,384	966	1,730	2,377	1,601	-	1,563	85,621	87,063
Purchased power payable	71,893	2,703	6,208	20,269	3,599	-	-	28,543	21,093
Credit support collateral obligation	533	-	-	-	-	-	3,293	3,826	4,303
Long-term debt due within one year	98,040	-	-	10,900	-	-	18,450	127,390	118,305
Accrued decommissioning	6,751	-	-	-	-	-	-	6,751	5,649
Interest payable	22,823	-	-	1,401	-	5,438	394	30,056	29,337
Accrued salaries and compensated absences	47,854	-	-	-	-	-	-	47,854	40,799
Derivative financial instruments maturing within one year	20,236	-	-	-	-	-	-	20,236	44,186
Customer deposits	4,724	-	-	-	-	-	-	4,724	23,715
Other	24,869	-	-	-	-	-	-	24,869	22,443
<b>Total current liabilities</b>	<b>375,107</b>	<b>3,669</b>	<b>7,938</b>	<b>34,947</b>	<b>5,200</b>	<b>5,438</b>	<b>23,700</b>	<b>379,870</b>	<b>446,893</b>
<b>NONCURRENT LIABILITIES</b>									
Accrued decommissioning - net	82,828	8,633	-	-	-	-	-	91,461	85,073
Derivative financial instruments	24,863	-	-	-	-	-	-	24,863	57,214
Net pension liability	424,820	-	-	-	-	-	-	424,820	467,648
Net OPEB liability	-	-	-	-	-	-	-	-	32,211
Other	92,884	-	-	-	-	120	-	93,004	88,459
<b>Total noncurrent liabilities</b>	<b>625,395</b>	<b>8,633</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>120</b>	<b>-</b>	<b>634,148</b>	<b>730,605</b>
<b>TOTAL LIABILITIES</b>	<b>3,418,000</b>	<b>12,302</b>	<b>7,938</b>	<b>147,498</b>	<b>5,200</b>	<b>561,103</b>	<b>187,185</b>	<b>4,263,097</b>	<b>4,111,787</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>									
Accumulated increase in fair value of hedging derivatives	16,191	-	-	-	-	-	-	16,191	13,604
Deferred pension inflows	10,659	-	-	-	-	-	-	10,659	40,585
Deferred OPEB inflows	54,173	-	-	-	-	-	-	54,173	39,200
Regulatory credits	524,219	-	-	-	-	-	-	524,219	485,636
Unamortized bond gains - other	6,266	-	-	-	-	-	-	6,266	7,253
Unearned revenue	3,474	43	-	-	-	-	-	3,517	3,610
<b>TOTAL DEFERRED INFLOWS OF RESOURCES</b>	<b>614,982</b>	<b>43</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>615,025</b>	<b>589,888</b>
<b>NET POSITION</b>									
Balance at beginning of year	1,944,593	33,298	74,811	119,915	64,447	(7,319)	10,146	1,957,512	1,804,277
Net increase (decrease) for the year	1,248	(531)	585	2,542	(823)	47	69	3,137	7,857
Member contributions (distributions) - net	-	-	-	-	-	34	30	-	-
<b>TOTAL NET POSITION</b>	<b>1,945,841</b>	<b>32,767</b>	<b>75,396</b>	<b>122,457</b>	<b>63,624</b>	<b>(7,238)</b>	<b>10,245</b>	<b>1,960,649</b>	<b>1,812,134</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION</b>	<b>\$ 5,978,823</b>	<b>\$ 45,112</b>	<b>\$ 83,334</b>	<b>\$ 269,955</b>	<b>\$ 68,824</b>	<b>\$ 553,865</b>	<b>\$ 197,430</b>	<b>\$ 6,838,771</b>	<b>\$ 6,513,809</b>

\*Numbers may not add across due to elimination entries not shown on this sheet.

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**  
**STATEMENTS OF CASH FLOWS**  
**For the Period Ended March 31, 2021**  
**(thousands of dollars)**

	Month	Year to Date
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Receipts from customers	\$ 115,017	\$ 323,756
Receipts from surplus power and gas sales	36,940	58,634
Other receipts	6,407	9,036
Payments to employees - payroll and other	(26,646)	(110,580)
Payments for wholesale power and gas purchases	(40,489)	(127,263)
Payments to vendors/others	(34,023)	(116,224)
Net cash provided by operating activities	57,206	37,359
<b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES</b>		
Interest on debt	-	(11,274)
Net cash used in noncapital financing activities	-	(11,274)
<b>CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES</b>		
Construction expenditures	(17,397)	(54,105)
Contributions in aid of construction	2,789	6,779
Interest on debt	-	(47,026)
Net cash used in capital and related financing activities	(14,608)	(94,352)
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Sales and maturities of securities	101	85,265
Purchases of securities	(5,036)	(5,036)
Interest and dividends received	289	3,062
Investment revenue/expenses - net	(184)	(557)
Net cash (used in) provided by investing activities	(4,830)	82,734
Net increase in cash and cash equivalents	37,768	14,467
Cash and cash equivalents at the beginning of the month and year	715,310	738,611
Cash and cash equivalents at March 31, 2021	\$ 753,078	\$ 753,078
Cash and cash equivalents included in:		
Unrestricted cash and cash equivalents	\$ 700,258	\$ 700,258
Restricted and designated cash and cash equivalents	38,929	38,929
Restricted and designated assets (a component of the total of \$192,770 at March 31, 2021)	13,891	13,891
Cash and cash equivalents at March 31, 2021	\$ 753,078	\$ 753,078



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 April 16, 2021, through May 15, 2021.



Sacramento, California

April 15, 2021

The Board of Directors of the Sacramento Municipal Utility District met in regular session via virtual meeting (online) at 5:31 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 Officer and General Counsel and Secretary, and members of SMUD's executive management; and SMUD employees and visitors.

President Bui-Thompson shared the environmental tip.

President Bui-Thompson announced that items 8 and 9 had been removed from the agenda and called for approval of the agenda as revised. Director Fishman moved for approval of the agenda as revised, Director Herber seconded, and the agenda as revised was unanimously approved.

Director Fishman, Chair, presented the report on the Strategic Development Committee meeting held on April 6, 2021.

Director Sanborn, Chair, presented the report on the Policy Committee meeting held on April 7, 2021.

Director Herber, Chair, presented the report on the Finance and Audit Committee meeting held on April 14, 2021.

Vice President Rose, Chair, presented the report on the Energy Resources & Customer Services Committee meeting held on April 14, 2021.

President Bui-Thompson called for statements from the public regarding items on the agenda, but none were forthcoming.

President Bui-Thompson then addressed the consent calendar consisting of Items 3 through 7. Director Kerth moved for approval of the consent calendar, Director Fishman seconded, and Resolution Nos. 21-04-01 through 21-04-03 were unanimously approved.



**RESOLUTION NO. 21-04-01**

**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 March 16, 2021, through April 15, 2021.

Approved: April 15, 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. 21-04-02**

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

This Board approves the revisions to **Strategic Direction SD-6,**  
**Safety**, substantially in the form as set forth in **Attachment A.**

Approved: April 15, 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			

**Attachment A  
to Resolution No. 21-04-02**

<b>SMUD BOARD POLICY</b>	
Category: <b>Strategic Direction</b>	Title: <b>Safety Leadership</b>
	Policy Number: <b>SD-6</b>
Date of Adoption: <b>August 21, 2003</b>	Resolution No. <b>03-08-12</b>
Revision Date: <b>October 16, 2003</b>	Resolution No. <b>03-10-14</b>
Revision Date: <b>February 3, 2005</b>	Resolution No. <b>05-02-06</b>
Revision Date: <b>November 15, 2007</b>	Resolution No. <b>07-11-12</b>
Revision Date: <b>December 20, 2012</b>	Resolution No. <b>12-12-11</b>
Revision Date: <b>August 21, 2014</b>	Resolution No. <b>14-08-05</b>
Revision Date: <b>April 15, 2021</b>	Resolution No. <b>21-04-02</b>

Creating a safe environment for employees and the public is a core value of SMUD.

Through best practice methods and continuous improvement, SMUD will be recognized as a leader in employee safety while also assuring the safety of the public related to SMUD operations and facilities. SMUD commits to a proactive approach, including the active involvement of SMUD leadership, employees, contractors, and the community, as well as comprehensive monitoring of organizational and public safety performance.

Therefore, SMUD will continue to improve safety results to:

**Workplace Safety**

- a) Reduce SMUD's injury severity incidents to 13 or less than by 2025, as measured by OSHA's Days Away Restricted Time (DART), a rate that demonstrates top quartile safety performance for similar size utilities using the Bureau of Labor Statistics (BLS) work-related safety data.
- b) Provide timely, quality health care for injured employees that aids their recovery while maintaining positive financial performance of the workers' compensation program.

**Contractor Safety**

- a) Support contractors to reduce and eliminate potential hazards for Serious Injuries and/or Fatality (SIF) when conducting high risk work.

**Public Safety**

- a) Track and report injuries to the public related to SMUD operations or facilities.
- b) Implement measures to protect the public from injuries related to SMUD operations or facilities.

**Monitoring Method: GM Report**  
**Frequency: Semi-Annual**

**RESOLUTION NO. 21-04-03**

**WHEREAS**, the Federal Energy Regulatory Commission (FERC) license for the Upper American River Project (UARP) requires SMUD to upgrade essentially all existing recreation facilities and construct new facilities in the Crystal Basin Recreation Area; and

**WHEREAS**, on December 18, 2020, SMUD issued Request for Proposal (RFP) No. Doc2701606177 to solicit qualified firms to extend the Union Valley Bike Trail as required by the FERC license; and

**WHEREAS**, five proposals were received and evaluated; **NOW, THEREFORE**,

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

**Section 1.** As a result of such evaluation, **Granite Construction Company** is hereby determined and declared to be the highest evaluated responsive proposer to provide construction services for the **Union Valley Bike Trail Extension Project**.

**Section 2.** The Chief Executive Officer and General Manager, or his designee, is authorized, on behalf of SMUD, to award a contract to **Granite Construction Company** to provide construction services for the **Union Valley Bike Trail Extension Project** in the Crystal Basin region of the **Upper American River Project (UARP)** for a total contract amount not-to-exceed \$20,300,300, and for a contract term from May 1, 2021, to December 31, 2023.

**Section 3.** The Chief Executive Officer and General Manager, or his designee, 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: April 15, 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			

President Bui-Thompson then turned to the Discussion Calendar and announced that Board Consultant Eric Douglas would provide a presentation on all items - Item 10 to approve proposed revisions to Strategic Direction SD-1A, Purpose Statement, Item 11 to approve proposed revisions to Strategic Direction SD-1B, Vision Statement, Item 12 to approve proposed revisions to Strategic Direction SD-7, Environmental Leadership, and Item 13 to approve proposed revisions to Strategic Direction SD-9, Resource Planning.

Eric Douglas, Senior Partner at Leading Resources, Inc., provided a presentation on Items 10 through 13. A copy of the slides used in his presentation is attached hereto.

Director Sanborn requested the proposed revision in the second sentence of the second paragraph of Strategic Direction SD-9, Resource Planning (SD-9), be revised from “clean distributed resources” to “clean distributed energy resources.” No Board members objected to this change.

Director Kerth requested the proposed revision in the second sentence of the second paragraph of SD-9 be revised from “Zero GHG emissions is achieved...” to “Zero GHG emissions will be achieved....” No Board members objected to this change.

Mark Graham, a member of the public from Elk Grove, commented on agenda item 11, noting that a zero carbon economy is not possible and asked the Board to acknowledge that the vision states an impossible goal. He then requested the Board to add language to the Vision Statement regarding health and safety and referenced various reports on the harmful health effects of smart meters.

Public comment was received and read into the record regarding Discussion Calendar agenda item 11, a copy of which is attached to these minutes, from the following member of the public:

- Derek Cressman

Director Sanborn commented that some users of energy are not owners, such as commercial businesses.

After some discussion, Vice President Rose moved for approval of Discussion Calendar Items 10 through 13, Director Sanborn seconded, and Resolution No. 21-04-04 was unanimously approved.

**RESOLUTION NO. 21-04-04**

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

This Board approves the revisions to the following **Strategic Direction** policies:

- i. **Strategic Direction SD-1A, Purpose Statement,**  
substantially in the form as set forth in **Attachment B.**
- ii. **Strategic Direction SD-1B, Vision Statement,** substantially  
in the form as set forth in **Attachment C.**
- iii. **Strategic Direction SD-7, Environmental Leadership,**  
substantially in the form as set forth in **Attachment D.**
- iv. **Strategic Direction SD-9, Resource Planning,**  
substantially in the form as set forth in **Attachment E.**

Approved: April 15, 2021

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



**Attachment B  
to Resolution No. 21-04-04**

<b>SMUD BOARD POLICY</b>	
Category: <b>Strategic Direction</b>	Title: <b>Purpose Statement</b>
	Policy Number: <b>SD-1A</b>
Date of Adoption: <b>May 1, 2003</b>	Resolution No. <b>03-05-09</b>
Revision Date: <b>October 16, 2003</b>	Resolution No. <b>03-10-14</b>
Revision Date: <b>November 15, 2007</b>	Resolution No. <b>07-11-11</b>
Revision Date: <b>June 19, 2008</b>	Resolution No. <b>08-06-11</b>
Revision Date: <b>August 20, 2015</b>	Resolution No. <b>15-08-10</b>
Revision Date: <b>April 15, 2021</b>	Resolution No. <b>21-04-04</b>

SMUD's purpose is to enhance the quality of life for our customers and community by providing reliable and affordable electricity, and leading the transition to a clean energy future.

**Monitoring Method: Board Report**  
**Frequency: Annual**

**Attachment C  
to Resolution No. 21-04-04**

<b>SMUD BOARD POLICY</b>	
Category: <b>Strategic Direction</b>	Title: <b>Vision Statement</b>
	Policy Number: <b>SD-1B</b>
Date of Adoption: <b>December 2, 2004</b>	Resolution No. <b>04-12-12</b>
Revision: <b>April 19, 2007</b>	Resolution No. <b>07-04-12</b>
Revision: <b>November 15, 2007</b>	Resolution No. <b>07-11-10</b>
Revision: <b>June 19, 2008</b>	Resolution No. <b>08-06-10</b>
Revision: <b>October 16, 2008</b>	Resolution No. <b>08-10-09</b>
Revision: <b>November 7, 2013</b>	Resolution No. <b>13-11-02</b>
Revision: <b>August 20, 2015</b>	Resolution No. <b>15-08-11</b>
Revision: <b>April 15, 2021</b>	Resolution No. <b>21-04-04</b>

SMUD's vision is to be a trusted and powerful partner in achieving an inclusive, zero carbon economy. SMUD will leverage its relationships to accelerate innovation, ensure energy affordability and reliability, protect the environment, eliminate greenhouse gas emissions, catalyze economic and workforce development, promote environmental justice, and enhance community vitality for all.

**Monitoring Method: Board Report**  
**Frequency: Annual**

**Attachment D  
to Resolution No. 21-04-04**

<b>SMUD BOARD POLICY</b>	
Category: <b>Strategic Direction</b>	Title: <b>Environmental Leadership</b>
	Policy Number: <b>SD-7</b>
Date of Adoption: <b>August 21, 2003</b>	Resolution No. <b>03-08-13</b>
Revision Date: <b>October 16, 2003</b>	Resolution No. <b>03-10-14</b>
Revision Date: <b>July 21, 2005</b>	Resolution No. <b>05-07-10</b>
Revision Date: <b>December 18, 2008</b>	Resolution No. <b>08-12-14</b>
Revision Date: <b>April 15, 2021</b>	Resolution No. <b>21-04-04</b>

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.

**Monitoring Method: GM Report**  
**Frequency: Annual**

**Attachment E  
to Resolution No. 21-04-04**

<b>SMUD BOARD POLICY</b>		
Category: <b>Strategic Direction</b>		Title: <b>Resource Planning</b>
		Policy Number: <b>SD-9</b>
Adoption Date:	<b>May 6, 2004</b>	Resolution No. <b>04-05-11</b>
Revision:	<b>May 6, 2004</b>	Resolution No. <b>04-05-12</b>
Revision:	<b>September 15, 2004</b>	Resolution No. <b>04-09-11</b>
Revision:	<b>May 17, 2007</b>	Resolution No. <b>07-05-10</b>
Revision:	<b>December 18, 2008</b>	Resolution No. <b>08-12-15</b>
Revision:	<b>November 19, 2009</b>	Resolution No. <b>09-11-08</b>
Revision:	<b>May 6, 2010</b>	Resolution No. <b>10-05-03</b>
Revision:	<b>May 19, 2011</b>	Resolution No. <b>11-05-05</b>
Revision:	<b>December 20, 2012</b>	Resolution No. <b>12-12-12</b>
Revision:	<b>October 3, 2013</b>	Resolution No. <b>13-10-09</b>
Revision:	<b>September 17, 2015</b>	Resolution No. <b>15-09-11</b>
Revision:	<b>October 20, 2016</b>	Resolution No. <b>16-10-14</b>
Revision:	<b>October 18, 2018</b>	Resolution No. <b>18-10-11</b>
Revision:	<b>January 16, 2020</b>	Resolution No. <b>20-01-06</b>
Revision:	<b>April 15, 2021</b>	Resolution No. <b>21-04-04</b>

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:

<b>Year</b>	<b>Greenhouse Gas Emissions (metric tons)</b>
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.

**Monitoring Method: GM Report**  
**Frequency: Annual**

President Bui-Thompson then turned to Informational Items 14 through 16 and stated that any public comment on informational items could be provided during the general public comment period.

Lisa Limcaco, Director of Accounting & Controller, gave a presentation on agenda item 14, regarding SMUD's financial statement through February 28, 2021. A copy of the slides used in her presentation is attached hereto.

With regard to agenda item 15, the Quarterly Report on the Status of Recommendations as of March 31, 2021, and the Audit Report regarding General Order 174, no clarifying questions or public comment were forthcoming.

Jennifer Davidson, Chief Financial Officer, gave a presentation on agenda item 16, a summary of SMUD's current Power Supply Costs. A copy of the slides used in her presentation is attached hereto.

President Bui-Thompson then turned to agenda item 17, 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.

Mark Graham commented on the financial statement and read portions of a prepared statement. A copy of his written submission is attached to these minutes.

Mr. Graham provided additional public comment to be entered into the record, a copy of which is attached to these minutes.

President Bui-Thompson then turned to Directors' Reports.

Vice President Rose reported on his attendance at a webinar provided by the Urban Land Institute (ULI) on the "missing middle housing" that highlighted strategies builders are using to build homes that are affordable by design. He noted that Jose Bodipo-Memba of SMUD's Sustainable Communities is President of ULI and that he appreciated receiving an invitation to the event. He then reported on his attendance, along with Director Sanborn, at a public

meeting for the Carmichael Undergrounding Project that will help to solve reliability issues in the area.

Director Fishman reported on his participation in a SMUD Building Leadership Talent event where he was able to speak to the group. He then reported on this attendance at a public meeting regarding the 59<sup>th</sup> Street Reuse Project. He then reported on his participation in virtual and in-person tours of SMUD's Museum of Science and Curiosity (MOSAC).

Director Herber reported on her participation in a virtual tour of MOSAC and noted she was looking forward to an in-person tour. She reported on her attendance at the Sacramento Area Congregations Together (Sacramento ACT) event, From Lament to Hope, as well as her work with Diane Matthews, a member of the Southland Park Neighborhood Association, with regard to a tree planting on City-owned property near Ms. Matthew's home. She then reported on the birthday celebration for My Sister's House and her attendance at the Rainbow Chamber Annual Business and Community Awards event where she provided opening remarks. She closed by reporting on her attendance at the State of the City provided by Elk Grove Mayor, Bobbie Singh Allen, as well as her attendance at the SMUD Cares virtual appreciation event.

Director Kerth reported on his attendance at a California Conservation Corps event where he provided some remarks for the opening of the Sacramento Energy Center, which will train people on energy-related skills such as service technician, installation, and more. He then thanked President Bui-Thompson for her continuing work to organize vaccine clinics at Grant High School and other locations.

Director Tamayo reported on his attendance at the 59<sup>th</sup> Street Reuse Project public meeting. He then reported on his attendance at the California Municipal Utilities Association (CMUA) Annual Conference where he was able to connect with one of the panelists, Commissioner Susana Reyes of Los Angeles Department of Water & Power, to discuss environmental justice issues.

Director Sanborn reported on her attendance at the Carmichael Underground Project and thanked staff for the associated public outreach and work to get it done quickly. She then read an e-mail from Misty Miller extending her thanks for SMUD's support of the Sacramento Tree Foundation and detailing her positive experience with the Sacramento Shade Tree program.

President Bui-Thompson thanked Directors Sanborn, Fishman, Kerth, and Mr. Lau for their volunteering efforts at the vaccination clinics. She then reported on her participation in the WE3 water and energy executive series where she provided comments and Sustainable Communities was highlighted. She then reported on her attendance at Elk Grove's State of the City provided by her good friend Bobbie Singh Allen who was recently elected as Mayor.

Paul Lau, Chief Executive Officer and General Manager, reported on the following items:

- 1) **Public Comment on Zero Carbon Plan.** As the Board knows, we released our 2030 Zero Carbon Plan in late March. Our goal of eliminating carbon emissions from our power supply by 2030 is the most ambitious goal of any large utility in the nation, and the Plan is our road map to get to zero. The public can continue to comment on our 2030 Zero Carbon Plan through tomorrow, April 16, 2021, at [smud.org/zerocarbon](http://smud.org/zerocarbon). The Board is scheduled to vote on the Plan at the April 28, 2021, meeting. During the development of our Zero Carbon Plan, we met with more than 600 customers and a range of stakeholder and incorporated their ideas into the Plan. It is great to have this dialogue. We are adding the input received on our website into the Plan and will share the information at the April 28, 2021, meeting.
- 2) **SMUD Recognized for Carbon Reduction Efforts.** The Smart Electric Power Alliance, or SEPA, released a "Utility Transformation Profile Report" on Wednesday recognizing SMUD as one of 10 utilities making the greatest progress



toward the transition to a zero carbon future. SEPA's Utility Transformation leader board includes SMUD, Austin Energy, Los Angeles Department of Water and Power, PG&E, Seattle Light and Southern California Edison. The Utility Transformation Challenge is a comprehensive assessment of U.S. electric utilities' progress toward a modern, carbon-free energy system. SEPA received responses from 135 utilities representing more than 83 million customer accounts, or 63 percent of the national total. Since the study is in its first year, SEPA released a leader board of top 10 utilities, but no scores or rankings were shared.

3) **SMUD Cares Comes Through Again.** We held a virtual event last week to thank the employees who participated in SMUD Cares in 2020. SMUD Cares is the giving and volunteer program through which our employees have raised more \$5.7 million for local nonprofits over the last 15 years. In 2020, despite the limitations imposed by the pandemic and remote work schedules, SMUD employees volunteered more than 16,000 hours and gave more than \$360,000 to support the nonprofit organizations they're passionate about. I would like to take this opportunity to publicly thank SMUD employees for the generosity they have shown to those in in our community who need it most.

4) **Energy Storage Project.** SMUD will be testing six battery energy storage units in a utility-scale energy storage project to help us learn more about a technology we expect to play a prominent role in helping us achieve our zero carbon goal. The purpose of the project is to demonstrate what we need to do to buy, install and maintain utility-scale battery energy storage facilities in the future. The lithium-ion batteries we'll be testing at the Hedge site can generate 4 megawatts of electricity and

store 8 megawatt-hours of electricity. Each of the six units consists of 3,840 battery cells stacked and connected in 20-foot containers. The units are scheduled to arrive next week. Construction will begin in early May behind our Sacramento Power Academy training facility across from the Hedge substation. The system is scheduled to be operational in October. We are excited to bring these batteries online. As the prices decline and storage times grow, we expect energy storage to be a game changer in integrating even more renewables into our grid. Our Research & Development team will operate the system for about two years to test and monitor the batteries' performance to inform our future battery adoption.

- 5) **Board Video.** Tonight's Board video takes a look at SMUD's support of dairy digesters, which convert cow waste into clean, renewable power.

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 6:49 p.m.

Approved:

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President

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Secretary

# Exhibit to Agenda Item #10

Approve proposed revisions to **Strategic Direction SD-1A,**  
**Purpose Statement.**

Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Proposed Revisions SD-1A, Purpose Statement

SMUD's ~~is community-owned. Our~~ purpose is to enhance the quality of life for our customers and community ~~through creative energy solutions by providing~~ reliable and affordable electricity, and leading the transition to a clean energy future.

# Exhibit to Agenda Item #11

Approve proposed revisions to **Strategic Direction SD-1B,**  
**Vision Statement.**

Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Proposed Revisions SD-1B, Vision Statement

SMUD's vision is to be ~~the~~ a trusted and powerful partner in achieving an inclusive, zero carbon economy. SMUD will leverage its relationships to accelerate innovation, ~~with our customers and community, providing innovative solutions to~~ ensure energy affordability and reliability, ~~improve~~ protect the environment, ~~reduce our region's carbon footprint,~~ eliminate greenhouse gas emissions, catalyze economic and workforce development, promote environmental justice, and enhance ~~the~~ community vitality ~~of our community~~ for all.

# Exhibit to Agenda Item #12

Approve proposed revisions to **Strategic Direction SD-7,  
Environmental Leadership.**

Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Proposed Revisions

## SD-7, Environmental Leadership

Environmental leadership is a core value of SMUD. ~~The Board is committed to environmental leadership through community engagement, continuous improvement in pollution prevention, carbon reduction, energy efficiency, and conservation.~~ In achieving this directive, SMUD will:

Therefore:

- a) ~~SMUD will~~ Conduct its business affairs and operations in a sustainable manner by continuously improving pollution prevention, that reduces adverse minimizing environmental impacts, conserving resources, and promoting equity within SMUD's diverse communities ~~reduces pollution, and enhances resource conservation and stewardship.~~



# Proposed Revisions

## SD-7, Environmental Leadership

- b) ~~SMUD will~~ Provide leadership and innovation to improve air quality and reduce greenhouse gas emissions ~~in the reduction of the region's total emissions of greenhouse gases through proactive programs in all SMUD activities and development and support of national, State, and regional climate change policies and initiatives.~~
- c) ~~SMUD will~~ Promote the efficient use of energy by ~~its~~ our customers s ~~-owners.~~

# Proposed Revisions

## SD-7, Environmental Leadership

- d) Advance the electrification of vehicles, buildings and equipment.
- de) Attract and build partnerships with customers, communities, policy makers, the private sector and other stakeholders~~SMUD will proactively engage its customer-owners and other stakeholders in meeting this directive.~~

# Exhibit to Agenda Item #13

Approve proposed revisions to **Strategic Direction SD-9,**  
**Resource Planning.**

Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Proposed Revisions

## SD-9, Resource Planning

It is a core value of SMUD to provide its customers and community with a sustainable power supply ~~through the use of~~using 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 ~~2030~~2040. ~~Net-Zero~~ GHG emissions is achieved through investments in ~~vehicle and building electrification~~, energy efficiency, clean distributed resources, renewables portfolio standard (RPS) eligible renewables, energy storage, large hydroelectric generation, clean and biogas emissions free fuels, and new technologies and business models. Additionally, SMUD will continue pursuing GHG savings through vehicle, building and equipment electrification.

# Proposed Revisions

## SD-9, Resource Planning

SMUD shall assure reliability of the system, minimize environmental impacts on land, habitat, water and air quality, and maintain ~~a~~-competitive ~~position-rates~~ relative to other California electricity providers.

To guide SMUD in its resource evaluation and investment, the Board sets the following ~~interim-energy supply~~ goal:

Year	<del>Net</del> -Greenhouse Gas Emissions (metric tons)
2020	2,318,000
2030 - <del>beyond</del>	<del>1,350,0000</del>
<del>2040</del>	<del>Net Zero</del>
<del>2050</del>	<del>Net Zero</del>

# Proposed Revisions

## SD-9, Resource Planning

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)~~Achieve overall energy efficiency for our customers to maximize carbon reduction consistent with our Net Zero carbon target.~~

~~We are establishing the following goals for carbon reduction associated with building decarbonization:~~

Year	Attributable Building Decarbonization (metric tons)
2030	75,000
2040	330,000

# Proposed Revisions

## SD-9, Resource Planning

- b) ~~Provide dependable~~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: ~~emphasize local and regional environmental benefits.~~
  - 1. Emphasize local and regional benefits.
  - 2. Improve equity for under-served communities.

# Proposed Revisions

## SD-9, Resource Planning

- ~~d) SMUD will continue exploring additional opportunities to accelerate and reduce carbon in our region beyond the GHG goals in this policy.~~
- d) Explore, develop, and demonstrate emerging GHG-free technologies and business models.
- e) Promote cost effective, clean distributed generation through SMUD programs.



**From:** [Derek Cressman](#)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] Fwd: Your SMUD Board Notification - Board of Directors Meeting 04/15/21  
**Date:** Thursday, April 15, 2021 5:51:35 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.

Why does the new vision statement eliminate the fact that SMUD is community owned?

Sent from my iPad

Begin forwarded message:

**From:** SMUD <info@email.smud.org>  
**Date:** April 9, 2021 at 7:03:21 PM PDT  
**To:** dc@derekcressman.com  
**Subject:** Your SMUD Board Notification - Board of Directors Meeting 04/15/21  
**Reply-To:** SMUD <info@email.smud.org>

<!--[if gte (mso)]> 96 <![endif]-->

[View email in a browser](#)

SMUD Logo



Hello, Derek.

Thanks for joining our email list to receive notifications about SMUD meetings and specific topics that are of interest to you.

We want to let you know about an upcoming meeting:

**What:** Board of Directors meeting

**When:** April 15, 2021 at 5:30 p.m.

The following topic(s) will be discussed:

- 2040 Energy Plan (Integrated Resource Plan)
- Renewable Portfolio Standard

Please note that while there is some overlap in areas of interest covered by our email distribution lists ([see a full list of meeting alert categories](#)), we do our best to notify customers in advance of meetings for which we believe they have an interest. [Please see the meeting agenda](#) for a full list of topics that will be discussed. The agenda also includes information about how to livestream the event and you'll find information about how to watch recorded meetings at [smud.org/Board](https://smud.org/Board).

[View meeting agenda](#)

SMUD Logo



Your community-owned, not-for-profit electric service.

**Customer Service**

1-888-742-7683 (SMUD)

[Contact us by email](#)

Hours: Mon. - Fri. 7 a.m. - 7 p.m.

## Connect with us



6301 S Street, Sacramento, CA 95817

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# Exhibit to Agenda Item #14

Provide the Board with the financial results from the two-month period ended February 28, 2021.

Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

# February 2021 YTD – Change in Net Position

(millions of dollars)

- YTD customer sales – over target \$4M
  - Customer sales are \$9M over target primarily due to large commercial usage
  - Offset by increase in bad debt expense of \$5M
- Variance of purchased power and production cost –net \$10M under budget
  - Due to fuel market conditions in February
- Other Operating cost - \$8M under budget – primarily due to non-cash accounting entries
- Change in net position - \$23M over budget

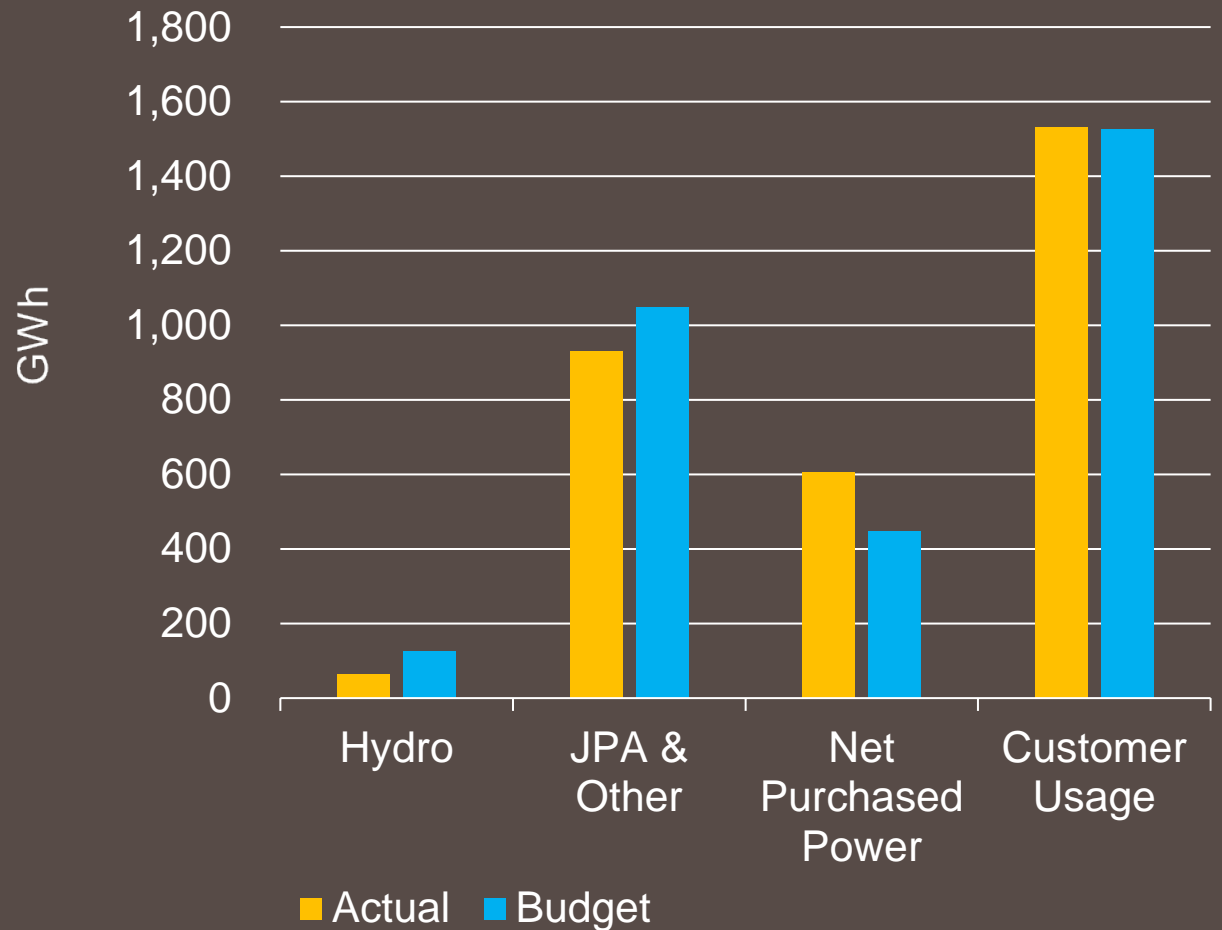
	Actual	Budget	Variance
Total customer sales	\$ 200	\$ 196	\$ 4
Other operating revenues	\$ 9	\$ 6	\$ 3
Net transfer to rate stabilization fund	\$ (2)	\$ -	\$ (2)
<b>Total operating revenues</b>	<b>\$ 207</b>	<b>\$ 202</b>	<b>\$ 5</b>
Net purchased power	\$ 35	\$ 33	\$ 2
Net production	\$ 34	\$ 46	\$ (12)
Transmission and distribution	\$ 29	\$ 28	\$ 1
Other operating costs	\$ 87	\$ 95	\$ (8)
<b>Total operating expenses</b>	<b>\$ 185</b>	<b>\$ 202</b>	<b>\$ (17)</b>
<b>Net operating income</b>	<b>\$ 22</b>	<b>\$ (0)</b>	<b>\$ 22</b>
Total non-operating revenues	\$ 5	\$ 4	\$ 1
Total non-operating expenses	\$ 19	\$ 19	\$ (0)
<b>Change in Net Position</b>	<b>\$ 8</b>	<b>\$ (15)</b>	<b>\$ 23</b>

# February 2021 YTD – Energy Sources & Uses

## Sources of energy

- Hydro – 50% under budget
- JPA – 12% under budget
- Purchased Power (net of surplus power sales) – 35% over budget

YTD customer usage <1% over target



# Exhibit to Agenda Item #16

Provide the Summary of SMUD's current Power Supply Costs.

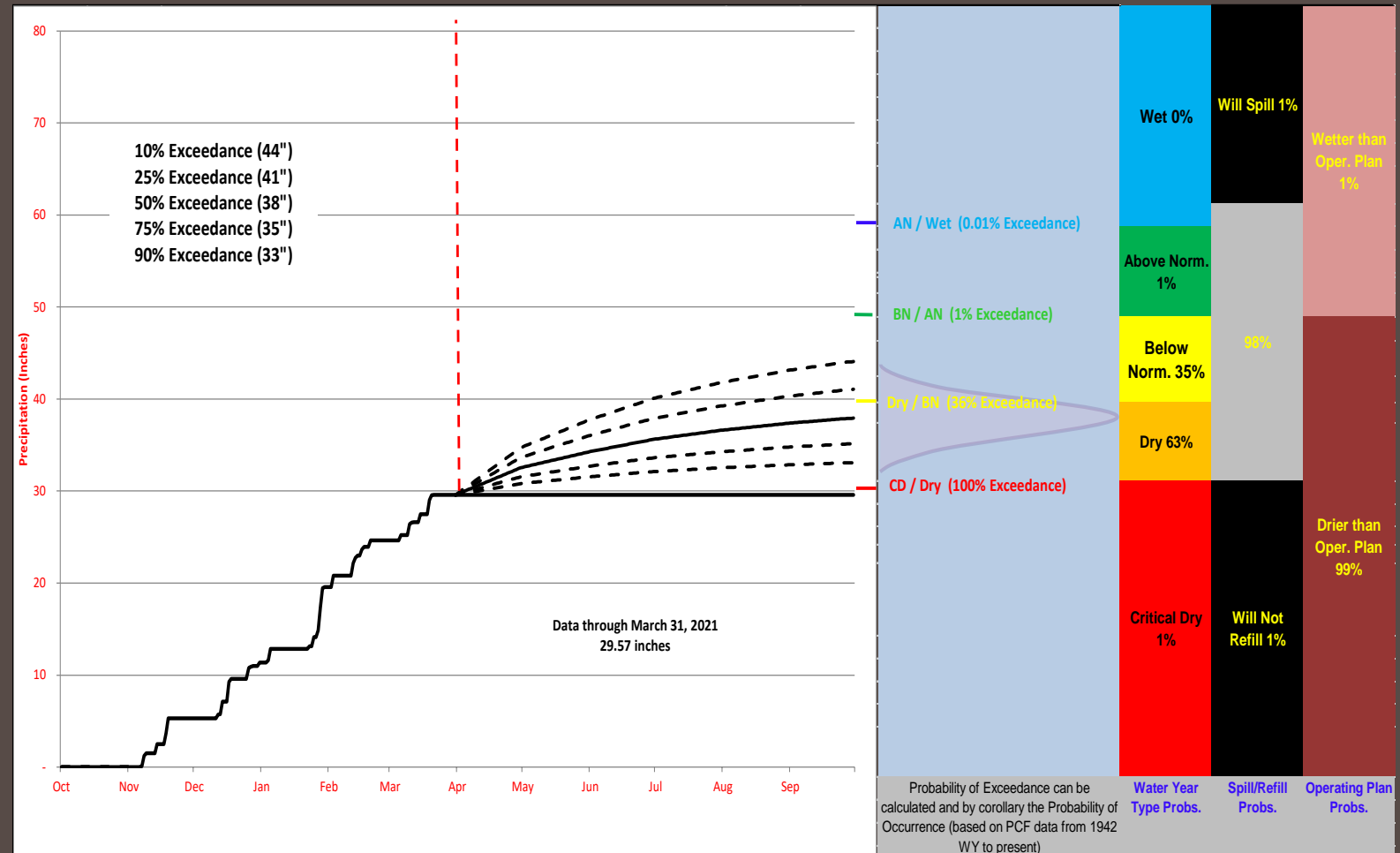
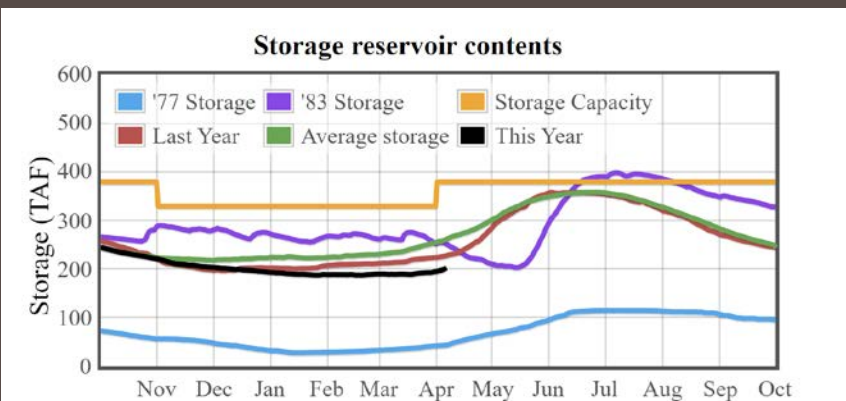
Board of Directors Meeting

Thursday, April 15, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Precipitation Levels

Precipitation - Pacific House Plan vs. Actual/Forecast			
Month	Plan	Actual	Difference
Oct-20	2.13"	0.00"	-2.13"
Nov-20	7.61"	5.30"	-2.31"
Dec-20	7.45"	6.08"	-1.37"
Jan-21	9.29"	8.41"	-0.88"
Feb-21	8.49"	5.09"	-3.40"
Mar-21	6.76"	4.92"	-1.84"
Total	41.73"	29.80"	-11.93"





# Commodity Budget: Mitigations & Forecast

SMUD has in place financial mitigation tools that hedge against hydroelectric uncertainty

- HRSF Balance - \$74.7M
  - WY (Apr20-Mar21) forecasted withdrawal \$19.1M
- RSF WAPA Balance - \$44.7M
  - 2021 forecasted transfer out of the WAPA RSF \$8.4M

*HRSF – Hydro Rate Stabilization Fund*

*RSF – Rate Stabilization Fund*

*WAPA – Western Area Power Administration*

## 2021 Commodity Costs Forecast vs. Budget (in millions)

Forecast	Budget	Difference
\$ 426*	\$ 441	\$ 15

\*Thru February 2021. Data for March was not available at time of publication.

## Hydro Performance as March 31, 2021

	Forecasted (GWh)	2021 Budget (GWh)	Variance (GWh)
UARP	983	1,558	-575
WAPA	494	661	-167
UARP + WAPA	1,477	2,219	-742

**From:** [Mark Graham](#)  
**To:** [Public Comment: Jenna Lesch](#)  
**Subject:** [EXTERNAL] Re: Finance & Audit Committee Wednesday, April 14, 2021 at 5:30 p.m.  
**Date:** Thursday, April 15, 2021 6:29:32 PM

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**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.

April 15, 2021

Dear Ms. Lesch,

Please forward this to the Directors and make this part of the record of today's Board meeting. Thank you.

Hello Finance and Audit Committee,

Just now during my public comments in the Board meeting I mentioned these questions from your customer owners at the April, 2020 Board meeting. Three days ago I emailed these comments to SMUD for the Finance and Audit Committee for its meeting yesterday afternoon. As I said during the meeting Director Sanborn asked Board President Kerth if he would direct staff to answer the questions that nine (9) of your customers had asked about the year to date financials. Ms. Laura Lewis had read those comments aloud during the Board meeting.

In a **deliberate attempt to avoid transparency and accountability** Board President Rob Kerth made an empty promise that the Board would answer the customer owners' questions later during the April 16, 2020 Board meeting. The Board did not return to those questions or answer them or direct staff to answer them. The Board blew it off. It was so obvious.

Those questions are still pending.

Will you answer them?

Thank you,

Mark Graham

On 4/12/2021 3:20 PM, Mark Graham wrote:

April 12, 2021

SMUD Finance & Audit Committee members and staff,

I may or may not attempt to provide verbal comments during this meeting. In either case here are my written public comments. I request a written response from the Committee.

The Finance and Audit Committee has the jurisdiction to review the current

electricity rates and charges and financial results and to make recommendations to the staff regarding changes to them and to direct staff to provide certain information to the Committee and answer certain questions about those rates and charges and SMUD finances.

Regarding questions from SMUD customer owners, as you may recall during the April 16, 2020 (yes almost one year ago) Board meeting there were nine (9) SMUD customers who contacted the Board, each with a different question about an agenda item, which was agenda item 5, FEBRUARY 2020 FINANCIAL RESULTS AND OPERATIONS DATA. Those were SMUD customers Melissa Andrews, Noah Davidson, Jeff Durbin, Richard Lee, Julie Ostoich, Kim Glazzard, Whitney Leeman, Ginny Linn and myself. (Ms. Leeman's comments were about agenda item 8, the 2020 bonds.)

During the Board meeting and after Ms. Lewis had read each of these public comments consisting of statements and questions about agenda item 5 Director Heidi Sanborn asked Board President Rob Kerth if he wanted staff to respond to the customer - owners' questions about the agenda item. That was the perfect time for the Board or the staff to respond to the questions - or at the very least for the Board to direct staff to produce answers to each question and deliver the answer to the SMUD customer owner. There was NO other agenda item for the staff or the Board to respond to customer - owner questions about agenda item 5. Every Director knew or should have known this. Staff knew it too. This is part of understanding how the Board meetings are run and how the Board agendas work.

In a **deliberate attempt to avoid transparency and accountability** Board President Rob Kerth made an empty promise that the Board would answer the customer owners' questions later during the April 16, 2020 Board meeting. The Board did not return to those questions or answer them or direct staff to answer them. The Board blew it off. It was so obvious.

Board Member and Director Heidi Sanborn asked Rob Kerth if he would direct the staff to respond to the public comments on this \$21.8 million surplus, SMUD's updated budget projections, and requests for rebates or refunds. "Yep, so I was actually trying to raise my hand on the last item because I, I thought there was a lot of um, confusion by some of the commenters and I was wondering if staff would feel comfortable addressing the, the, the information that was presented was through February and there's a, a lot that's changed since then, um, or is that going to be addressed later in the agenda (unintelligible) to another item." (29:14 on the meeting video)

Rob Kerth replied, "Yeah I think we'll take care of that later in the agenda."

Director Sanborn said, "OK, thank you."

That was the end of it. **Those questions remain pending by those SMUD customer owners.** I am asking the Committee to direct staff to answer those questions, preferably by posting one document on the SMUD website containing all of the customer - owner questions for the April 16, 2020 meeting and SMUD's answers and sharing that web page with those persons who submitted questions by sending them a hyperlink to that page.

For your convenience I am sending you in this message a pdf file containing those questions from the 9 SMUD customer owners.

Please respond in writing.

Sincerely,

Mark Graham

I also emailed Ms. Ketchum, Ms. Moorman and Ms. Limcaco at SMUD on April 14, 2020 with

**From:** [Mark Graham](#)  
**To:** [Jenna Lesch](#)  
**Cc:** [PRA](#)  
**Subject:** [EXTERNAL] For the Directors; Public Records Act request  
**Date:** Thursday, April 15, 2021 7:26:38 PM

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**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.

April 15, 2021

Ms. Lesch,

Please deliver this to the Directors and put this in the record of today's Board of Directors meeting.

Directors,

You may remember that last April, May, and December I commented that SMUD was running large monthly surpluses, called increases in net position, of approximately \$20 million per month which was about \$10 million per month above budget. That trend continued through October, 2020. Based on the Board information packet for today's meeting that trend continues, despite all the uncertainty associated with the pandemic.

TO: Distribution DATE: March 25, 2021  
ACC 21-002  
FROM: Kathy Ketchum / Lisa Limcaco  
SUBJECT: FEBRUARY 2021 FINANCIAL RESULTS AND OPERATIONS  
DATA

We are attaching the financial and operating reports for the two months of 2021. They include sales and generation statistics and other selected data. SMUD's year-to-date net position increased \$8.2 million compared to a \$14.8 million decrease projected in the budget. We attribute the favorable variance of \$23.0 million to higher operating and non-operating revenues, lower interest expenses and higher operating expenses.

(Page 160)

Given all of this extra money it would be completely dishonest and inconsistent with the financial data for SMUD to NOT acknowledge that its current financial picture, despite the uncertainty of the pandemic, is very strong. And that there is a large buffer between SMUD and its ability to meet all of its financial obligations. The question today, as it was last April and all of last year, is, "Given the SMUD financials can SMUD forego the 2021 rate increase without suffering great or irreparable harm?"

SMUD financials show that the answer is a clear, "Yes". Unfortunately staff continues to hide behind platitudes and its only response has been qualitative, not quantitative. The Board has never asked staff to produce a projected 2021 financial analysis on the assumption that SMUD

does forego the 2021 rate increases. I am asking for that again. **Directors, please direct staff to produce a projected 2021 (and might as well do 2022) financial analysis on the assumption that SMUD foregoes the planned October 1, 2021 rate increase, and with all other things being equal.**

This financial analysis should include projections for SMUD's current assets, its minimum fixed charge coverage ratio, and its increase in net position for the years 2021 and 2022 as well as all of the other things that a financial analysis would include.

Here are three other metrics of SMUD's financial position:

"SMUD's Board policy sets a minimum fixed charge coverage ratio of 1.50 times for annual budgets, though it generally plans to meet a minimum fixed charge coverage ratio of 1.70 times. Over the past ten years, the actual fixed charge coverage ratio has averaged 2.07 times on a consolidated basis.

SMUD also manages its liquidity position by planning for a minimum of 150 days cash on hand. Over the past ten years, the days cash on hand has averaged 193."

(Appendix A to the draft preliminary official statement, page A-5, which is page 249 of the Board information packet for the April, 2020 meeting.)

**SMUD is sitting on enormous cash reserves that provide more than an adequate and more than an abundant margin.**

SMUD's latest audited financial statement, for 2019, shows:

CURRENT ASSETS (thousands of dollars)

	2019	2018
Unrestricted cash and cash equivalents	255,578	211,252
Unrestricted investments	195,435	183,983
Subtotals	approximately 450,000	394,000

Financial Statements, Report of Independent, Auditors, December 31, 2019 and 2018, page 16 (which is page 19 in the pdf file.)

That is about 1/3 of SMUD's total customer sales, which were \$1.559 billion in 2019 and \$1.595 billion in 2018.

These are the most recent financial statements shown on the SMUD website.

<https://www.smud.org/en/Corporate/About-us/Company-Information/Reports-and-Statements>

**Staff's (qualitative) justification for continuing to raise rates despite massive ongoing financial surpluses**

As I said tonight during public comments I appreciate Director Herber's letter regarding the 2020 SMUD financial surplus and your customer owners' recommendation that in light of that

surplus and its very good financial position SMUD should forego the 2021 planned rate increases. That was the most substantive response SMUD has ever provided since I began following SMUD. Laura Lewis delivered Director Herber's message to me via email on January 4, 2021. I am attaching it to this email as I received it. The name of the document is "Mr Graham\_SMUD\_delaying rate increases for 2021.docx."

Unfortunately this letter was long on platitudes and short on specifics. So short that the letter did not include ANY numbers! Imagine a long letter about finances that did not mention any numbers! It's absurd, isn't it?! Yes it is. Staff deliberately omitted any mention of any numbers, any measurements or indicators of SMUD's financials. Why is that? Could it be because the truth is that SMUD really COULD forego the 2021 rate increases and still have a LARGE financial margin on top of still being able to meet all of its obligations? I think so. Your financial statements and results shows that you could.

Last April and May I asked for a SMUD response based on numbers. The way I said it was I am asking for a quantitative response. SMUD's staff response is purely qualitative, and another word for it is full of platitudes. ("uncertainty" - which doesn't appear to have been a problem for SMUD in 2020, "flexibility" - ditto, and the "credit rating", which is a real thing that is ENTIRELY about numbers, yet SMUD failed and neglected to provide ANY numbers and ANY financial analysis to support the broad claim that foregoing a rate increase would negatively affect the credit rating.) Also, note that the February, 2021 Board information packet says, "SMUD has in place financial mitigation tools that hedge against hydroelectric uncertainty" (Page 44)

Let me give you an analogy Directors. Surely you can't disagree with this.

Suppose you are about to go to the grocery store to buy groceries for your family. You have a thousand dollars cash in your pocket. As you are walking out the door your spouse says, "Wait, I need to buy some clothes for the kids. Give me five hundred dollars." You are surprised by this request, although surely you knew that your kids needed new clothes. You say, "I can't give you five hundred dollars to buy clothes for the kids because I am going shopping for groceries for the family and I need all of the one thousand dollars I have on me."

Does that make any sense? Of course not. But that is just what SMUD is doing by hoarding all this money and claiming that it needs to continue, and even to RAISE RATES so that its monthly surplus (aka increase in net position) will be **even higher!**

The third reason in Director Herber's undated (but delivered to me on January 4, 2021) letter that SMUD allegedly cannot forego the 2021 rate increase was the credit rating.

"Staff tells me that back tracking on a rate increase will definitely cause concern and doubt by investors and rating agencies. This could result in negative financial consequences for SMUD."

Is that based on any facts? On any data? Show me the records that support that. It sounds like an unsubstantiated claim motivated by greed.

To the contrary, foregoing a rate increase is very well supported by SMUD's financial statements. It would be a sign of strength. A utility that was in poor financial condition could not afford to forego a rate increase but one that is in very good financial condition can.

Also, there is nothing in the 2020 bond agreement that I was able to find that requires SMUD to carry out the planned rate increases. This is a question and I am asking for an answer. Is there any statement in the 2020 bond agreement or any other contemporary bond agreement that requires SMUD to carry out the planned rate increases OR says that SMUD CANNOT forego one of the planned rate increases?

Please answer the question. If you cannot answer it tonight then answer it later. You have my email address. Directors, will you find the answer to that?

To make it clear this is also a public records act request for electronic copies of any records SMUD has that support the statement in Director Herber's letter to me, "Staff tells me that back tracking on a rate increase will definitely cause concern and doubt by investors and rating agencies."

Sincerely,

Mark Graham



Dear Mr. Graham,

Thank you for your email. I appreciate your patience as I consulted with staff to double check the answers they provided me on the questions you raised. I took this time to make sure that I'm providing you with my best understanding of the answers to your questions.

I'm sending the answer to your email through SMUD's Chief Legal Officer because you filed a lawsuit against SMUD and it is still pending. As a result, I've been advised by Legal Counsel not to engage with you directly. I agreed to this limitation with the understanding that I could provide a reply email that explained my position on the concerns you raised.

Your email questions why SMUD needs to proceed with the two scheduled rate increases in 2021, given the financial results through October. You raise a good question and one that other customers may have asked, given SMUD's strong financial results this year.

Staff tells me that SMUD's budget surplus this year is due to a variety of factors. These include one-time unplanned events that will not recur next year, such as termination of our natural gas prepay contract, a storm insurance settlement, and divestiture of our gas reserves. Additionally, hotter than normal weather and reduced expenses due to COVID contributed to the surplus.

There are several reasons why eliminating the scheduled 2021 rate increases is strongly opposed by staff. First and foremost, there remains a substantial amount of uncertainty about the economic pressures that SMUD may experience in 2021. Although we are hopeful that the approval of the vaccines will enable SMUD to put this pandemic behind us, we cannot predict the impact that anticipated renewed stay at home orders and associated business closures will have on the economy. On top of the uncertainty related to COVID, the weather continues to be unpredictable as we have not yet to see any measurable rainfall in December, which isn't good.

Second, maintaining a strong financial footing provides SMUD with significant flexibility. From an operational perspective, SMUD needs to have enough liquidity to cover increased costs associated with wildfires or unexpected operational conditions. SMUD must also ensure that we are well positioned to make the necessary investments to achieve our 2030 zero carbon goal, including the ability to take advantage of any sort of grant funding since these grants typically have matching requirements. Finally, SMUD wants to ensure that we have the resources to help our customers most in need. We expect customer delinquencies (nonpayment of SMUD bills) to continue to rise between now and the end of the pandemic. Staff also projects that there may be more customers that qualify for subsidies under our Energy Assistance Program Rate (EAPR) next year than we initially assumed. SMUD must be prepared for these potential costs.

Eliminating the proposed rate increases could also negatively impact our credit rating, which is extremely important for the long term stability of SMUD. Access to capital markets and low interest rates are essential to keeping SMUD's rates low over the long term. SMUD has a strong reputation with the rating agencies due to our willingness to make necessary rate increases when it is needed. As you may recall, SMUD's solid reputation was key to investors being willing to buy SMUD's debt back in the Spring of 2020 when others were not able to get financing. Staff tells me that back tracking on a rate increase will definitely cause concern and doubt by investors and rating agencies. This could result in negative financial consequences for SMUD.

Based on several long conversations with staff, I'm convinced that the SMUD Board made the right decision to stay the course with respect to the 2021 rate increases. I understand that you feel differently and we may need to agree to disagree. Still, I wanted you to know that I checked

into your concern and I believe that staff is doing the right thing. If the Board eliminated the 2021 rate increases, it could cause even larger rate increases in the future to make up for not implementing the adopted rate increases. I'm doing all that I can to keep an eye on SMUD's operations to make sure rate increases are kept to a minimum and I will continue to do that. I think staff's recommendation is the most prudent approach and I support them on this issue.

Thanks again for reaching out.  
Rosanna Herber



Sacramento, California

April 28, 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 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 Fishman moved for approval of the agenda, Director Herber seconded, and the agenda was unanimously approved.

President Bui-Thompson then turned to Discussion Calendar Item 2, to accept SMUD's 2030 Zero Carbon Plan with the clarifications made in response to public comments, and noted that Mr. Lau would provide some introductory comments before the presentation.

Mr. Lau stated that it was an exciting night to present SMUD's 2030 Zero Carbon Plan, the most ambitious of any large utility in the United States, to the Board for approval. Staff introduced the Plan to the Board on March 9, 2021, and released it for public comment on March 26th. On March 31, 2021, the Board discussed key elements of the Plan, and SMUD had received 48 written comments on the Zero Carbon Plan during the public comment period. He then shared his thoughts about testifying before Congress at the House Select Committee on the Climate Crisis the previous week. He stated there is tremendous interest at the national level in clean energy, with President Biden's announcement of his \$2.25 trillion infrastructure plan, and its focus on clean energy and decarbonization. He said it was an honor and a great opportunity for SMUD to share our Zero Carbon Plan with Congress and the rest of the country.

He noted one of the committee members, Congressman Mike Levin from San Diego, praised SMUD for our leadership and said he hopes the entire committee can visit Sacramento to get a close-up look at our efforts. He stated Congresswoman Doris Matsui submitted a statement into the Congressional Record praising SMUD's leadership on the climate issue, concluding her statement with, "Clean energy deployment and green jobs are a part of the future that our communities deserve ... I am honored to work alongside a progressive, community-owned, and community-minded utility company." He then thanked the Board for its visionary leadership and staff for their passion, commitment and hard work to turn this Vision into an actionable plan.

Scott Martin, Interim Chief Grid Strategy and Operations Officer, gave a presentation on agenda item 2. A copy of the slides used in his presentation is attached hereto.

Director Sanborn referenced a public comment from Harold Thomas stating that the Plan fails to calculate the capital contribution of the rooftop solar panel owner. She asked Mr. Martin if it had been accounted for in the math of the Plan that homeowners are paying for part of the system.

Mr. Martin confirmed it had been accounted for and indicated he would check to ensure that the comment had been responded to directly.

Director Kerth asked Mr. Martin to summarize the guiding principles that had been used for the work thus far.

Mr. Martin stated that getting to zero carbon without sacrificing reliability and working with the communities guided staff's work.

Director Fishman commented that the California Independent System Operation (CAISO) had released a news release stating that it was going to begin to revamp the market structure to deal with energy storage, and he noted that it was representative of how SMUD is not alone and will be able to provide some education and learn from others as more entities start to tackle this problem.

Director Tamayo asked about the possibility of partnering with other entities on pumped storage.

Mr. Martin stated that hydro electric pumped storage was absolutely an option.

Director Herber stated that the Plan was flexible, and she appreciated how it allowed for SMUD to continue to work with the community and pivot or change to meet a special need within a community.

Vice President Rose asked Mr. Martin to provide more information on the pumped storage option.

Mr. Martin stated that staff was looking at opportunities available with existing reservoirs, powerhouses, and facilities. He stated that while there was no plan to build new reservoir, staff is exploring how to use hydro power within the existing footprint, and a study would be undertaken to further explore.

Vice President Rose asked Mr. Martin to elaborate on resource diversity.

Mr. Martin stated that staff is looking at ways to diversify the overall portfolio while also bearing in mind the cost to transport some resources back to the local area. He stated that staff was looking at a number of technologies and the resource mix to best meet the needs of customers at the most reasonable cost.

Vice President Rose inquired about whether batteries would be used more for distributed storage or more central station.

Mr. Martin stated that it would be both. He noted that SMUD wants to encourage people to couple batteries with solar and noted that utility scale type batteries could be located in a number of places.

Luis Amezcua, Senior Campaign Representative for the Sierra Club, thanked staff for their collaboration and stated his appreciation that the Plan prioritizes equity by ensuring environmental justice communities in the region can reap the benefits of clean energy investments and that the retirement of the fossil fuel plants had been prioritized. A copy of his written comment is attached to these minutes.

Barbara Cleary, Chair of the Sacramento Group of the Sierra Club, stated her appreciation that SMUD move quickly to create the Plan after adoption

of the Climate Emergency declaration. A copy of her written comment is attached to these minutes.

Public comment was received and read into the record regarding agenda item 2, copies of which are attached to these minutes, from the following members of the public:

- Harold M. Thomas
- Carter Nelson, Sacramento Association of REALTORS®
- Rick Codina
- Ed Smeloff
- Peter Mackin (Sacramento Electric Vehicle Association)

After some discussion, Director Sanborn moved for approval of Discussion Calendar Item 2, Director Herber seconded, and Resolution No. 21-04-05 was unanimously approved.

## RESOLUTION NO. 21-04-05

**WHEREAS**, by Resolution No. 20-07-05, adopted on July 16, 2020, this Board declared a Climate Emergency, which, among other things, directed the Chief Executive Officer and General Manager (CEO & GM) to report on clear, actionable and measurable strategies and plans to reach SMUD's climate emergency goals of carbon neutrality by 2030 no later than March 31, 2021; and

**WHEREAS**, staff presented at the December 1, 2020, Strategic Development Committee SMUD's plan for preparing an actionable **Zero Carbon Plan** for the Board to consider by March 31, 2021; and

**WHEREAS**, SMUD developed a webpage, [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon), where interested participants could learn more about the 2030 Zero Carbon vision, sign up for notifications for Board and Board Committee meetings, review meeting recordings, and access frequently asked questions (FAQs); and

**WHEREAS** SMUD began extensive communication and outreach to customers, stakeholders and community members to get input into the development of the **Zero Carbon Plan**; and

**WHEREAS**, on December 8 and 9, 2020, SMUD held two virtual meetings for residential customers, with a total of 415 participants, and one meeting for community organizations, with a total of 82 participants, where the **2030 Zero Carbon Plan** was introduced and feedback collected; and

**WHEREAS**, on December 14, 15, and 16, 2020, SMUD held four virtual stakeholder meetings with 104 participants moderated by the Smart Electric Power Alliance (SEPA) for representatives from the following groups:

- ***Solar + Storage.***
- ***Environmental Organizations.***
- ***Community Organizations.***
- ***Business Leaders.***

**WHEREAS**, SMUD hosted an industry experts panel discussion on Visions, Solutions & Technologies for a Zero Carbon Future at the publicly noticed January 12, 2021, Strategic Development Committee meeting; and



**WHEREAS**, SMUD hosted an industry experts panel discussion on Distributed Energy Resources (DERs) and the Edge of the Grid at the publicly noticed January 26, 2021, Strategic Development Committee meeting; and

**WHEREAS**, SMUD hosted an industry experts panel discussion on Grid Scale Solutions for a Zero Carbon Future at the publicly noticed February 9, 2021, Strategic Development Committee meeting; and

**WHEREAS**, staff provided an informational update on the public consultation and engagement process in developing the **2030 Zero Carbon Plan** at the publicly noticed February 16, 2021, Finance and Audit Committee meeting; and

**WHEREAS**, on February 23, 24, and 25, 2021, SMUD held three virtual stakeholder workshops with 73 participants for representatives from the following groups to obtain feedback and input:

- ***Environmental Organizations (including Solar + Storage)***
- ***Community Organizations***
- ***Business Leaders and Key Accounts.***

**WHEREAS**, staff presented the draft **2030 Zero Carbon Plan** for review and feedback by Board members and public comment at the publicly noticed March 9, 2021, Strategic Development Committee; and

**WHEREAS**, staff released the executive summary and draft **2030 Zero Carbon Plan** on March 26, 2021, for public comment through April 16, 2021, and presented a summary of the 2030 Zero Carbon Plan at the March 31, 2021, Special SMUD Board of Directors meeting; and

**WHEREAS**, SMUD received and reviewed 48 public comments and nine additional comments, recommendations and questions received after release of the executive summary and draft **2030 Zero Carbon Plan** on March 26, 2021, through [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon) and through [ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org); and

**WHEREAS**, staff addressed the public comments and clarified the **2030 Zero Carbon Plan** at the April 28, 2021, Special Board of Directors meeting, as reflected in **Attachment B**; and

**WHEREAS**, the **2030 Zero Carbon Plan** establishes a goal to completely eliminate carbon emissions from SMUD's power supply by 2030 without compromising affordability or reliability, and in a manner that promotes environmental justice and equity; and

**WHEREAS**, collaborative partnerships with SMUD's customers and community, government agencies, community leaders and organizations, businesses, policy makers, and others to leverage opportunities to achieve rapid transformative reductions in regional GHG emissions form the cornerstone of SMUD's **2030 Zero Carbon Plan**; **NOW, THEREFORE**,

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

**Section 1.** This Board accepts the SMUD **2030 Zero Carbon Plan** in substantially similar form as set forth in **Attachment A** with the clarifications included on **Attachment B**.

Approved: April 28, 2021

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

# 2030 Zero Carbon Plan



SMUD's flexible road map to eliminate carbon emissions from our power supply by 2030.



# **Draft 2030 Zero Carbon Plan**

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## Executive summary

SMUD's goal to eliminate carbon emissions from our power supply by 2030 is more ambitious than 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.

For more than a half century, SMUD has focused on growing the amount of carbon-free electricity we provide to the Sacramento region. Construction of our Upper American River Project (UARP), a 688-MW hydroelectric system in the Sierra Nevada Mountains west of Lake Tahoe, began in 1957. Today, the UARP supplies 16% of our energy needs with low-cost, carbon-free electricity. With a range of other clean energy resources in our portfolio, SMUD's energy supply is on average 50% carbon-free today.

It's in our DNA to lead the way in carbon reduction. We've consistently set renewable energy and carbon reduction goals that are ahead of and more aggressive than state mandates. We set these aggressive goals because it's the right thing to do.

Having ambitious goals helped SMUD become the first large California utility to have at least 20% of our energy come from renewable sources. We have a long list of notable firsts: The original green power pricing program for our customers, the first utility in California to make time-based rates standard for all customers and the first solar-powered electric vehicle charging station in the western United States. But we recognize these are not enough.

Globally, 2016 and 2020 were the hottest years on record and California has witnessed first-hand the devastating impacts of carbon on our climate, with devastating wildfires, rising temperatures and decreased snowpack. 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, our 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 our strategy to achieve that goal.

Eliminating carbon emissions will deliver far-reaching benefits. It's the right thing to do for the environment, air quality, our children and grandchildren and for equity in communities that have traditionally been left out of decisions and discussions about carbon emissions. This ambitious goal puts the Sacramento Region on the map as an example to follow and a region where innovative, climate-friendly businesses want to be.

We have a track record of setting game changing goals and achieving them. Our 2030 Zero Carbon Plan details how we'll get to zero without compromising reliability or affordability. It comes with a commitment to keep rate increases within the rate of inflation. While nine years is



an aggressive timeline, we know the clean energy and clean technology sectors and customer preferences will change significantly between now and 2030, so flexibility is central to our Plan.

Going absolute zero carbon is a bold and ambitious goal -- one we believe we can and must achieve. We can't get there with today's technology and we can't get there alone. That's why innovation and partnership are key pillars of the Plan. Working in partnership with our customers and community, government agencies, community leaders and organizations, business leaders and the business community, legislators, regulators and others, we'll help align resources and programs for maximum impact in all communities. We know, for example, that widespread adoption of customer-owned distributed energy resources like electric vehicles and rooftop solar will be key to achieving zero carbon. Making these technologies accessible to all customers will be a central focus of our program development efforts over the coming years.

---

*Our 2030 Zero Carbon Plan is our road map to eliminate carbon emissions from our electricity production by 2030 while maintaining a reliable and affordable service and partnering with our customers, communities and a wide-range of stakeholders on this journey.*

---

## Our commitment to our customers and community

As a community-owned, not-for-profit utility, our customers and community are at the heart of all we do. By pursuing zero carbon, we're helping create a cleaner and healthier region for all. Our goal of zero carbon by 2030 is anchored in our longstanding commitment to provide safe and reliable power with rates among the lowest in California. We won't compromise on this commitment.

Our customers, community and other partners are central to our vision and part of the solution to decarbonize our region. Their input and participation have helped us develop the 2030 Zero Carbon Plan. Ongoing communications and engagement with our customers and community will help ensure we continue to deeply understand their needs, which will be essential to enhance our programs to support zero carbon while meeting our customers' evolving preferences. Continuing to educate customers on the benefits of zero carbon and ways they can take action will also be critical to achieving our goal.

SMUD's zero carbon goal is best achieved by finding mutually beneficial solutions and we reaffirm our commitment to being inclusive, supporting regional innovation, clean tech jobs and attracting clean energy investments to the region through collaborative partnerships.

We have an opportunity to bring together a wide-range of stakeholders — businesses, elected officials, community leaders and organizations, think tanks, academia, regulators, start-ups, native tribes, venture capitalists and others to align resources for maximum impact. We'll partner with others to develop technology, healthy ecosystems, find innovative sources of funding and develop new business models. We will also need to work closely with regulators with respect to climate-friendly policies and regulations that encourage electrification in the building and transportation sectors, which are currently the largest emitters of carbon/greenhouse gases in California.

SMUD is committed to achieving our zero carbon goal in an inclusive way that leaves no communities behind. For decades, SMUD has supported low-income customers with innovative programs to make energy efficiency and other technologies accessible. In 2016, SMUD introduced additional energy saving pilots which expanded our reach and helped thousands of income qualified customers adopt carbon reduction measures in their homes and reduce their overall energy bill burden. Measures included replacing gas appliances with electric appliances, installing rooftop solar systems, insulation, heating and cooling systems, and lighting and/or other weatherization improvements. We'll continue to re-examine our programs and pilots to tailor them to supporting our goal and our customers' needs in all segments.

Our Sustainable Communities Initiative helps bring environmental equity and economic vitality to all communities in our service area, with special attention given to historically under-resources neighborhoods. We believe in the ability to make a greater collective community impact through partnerships. Through our Sustainable Communities Initiative, we collaborate with private industry, government agencies and nonprofits to invest in and implement programs that provide equitable access to indicators of sustainable community success, with a focus on social wellbeing, healthy environment, prosperous economy and mobility.

We're looking at other creative ways to support investment in underserved communities, including partnerships with financial institutions and other businesses and pursuing foundation and private investments to support decarbonization programs.

We'll continue working with our business customers to identify partnership opportunities to align resources, test technology, electrify buildings and transportation. Together, we'll develop tailored programs and pilots, while exploring co-development of new technologies and solutions. We plan to partner to seek funding for new initiatives that can help our region decarbonize faster and at lower cost.

Policy makers and regulators play an incredibly important role in shaping our zero carbon future. We plan to work collaboratively to promote cost-effective measures to reduce carbon emissions and support policy that encourages carbon reduction. We'll also work with government agencies to seek funding opportunities for new technologies and solutions that support SMUD's research and development efforts.

We have a history of partnering with our community and are excited to have broad support from our customers and community for our commitment to eliminating carbon from our power supply. We will build on what we're already doing – leading by example and engaging members of our community and industry – and together we can create and work toward a shared vision for the future. We'll continue to empower our communities to work with us to make sure Sacramento communities are livable, resilient and ready for a low-carbon future.

## Community benefit



## The road to zero: Four focus areas

As a community-owned, not-for-profit utility, our customers and community are at the heart of all we do. By pursuing zero carbon, we're helping create a cleaner and healthier region for all. Our goal of zero carbon by 2030 is anchored in our longstanding commitment to provide safe and reliable power with rates among the lowest in California. We won't compromise on this commitment.

Our customers, community and other partners are central to our vision and part of the solution to decarbonize our region. Their input and participation have helped us develop the 2030 Zero Carbon Plan. Ongoing communications and engagement with our customers and community will help ensure we continue to deeply understand their needs, which will be essential to enhance our programs to support zero carbon while meeting our customers' evolving preferences. Continuing to educate customers on the benefits of zero carbon and ways they can take action will also be critical to achieving our goal.

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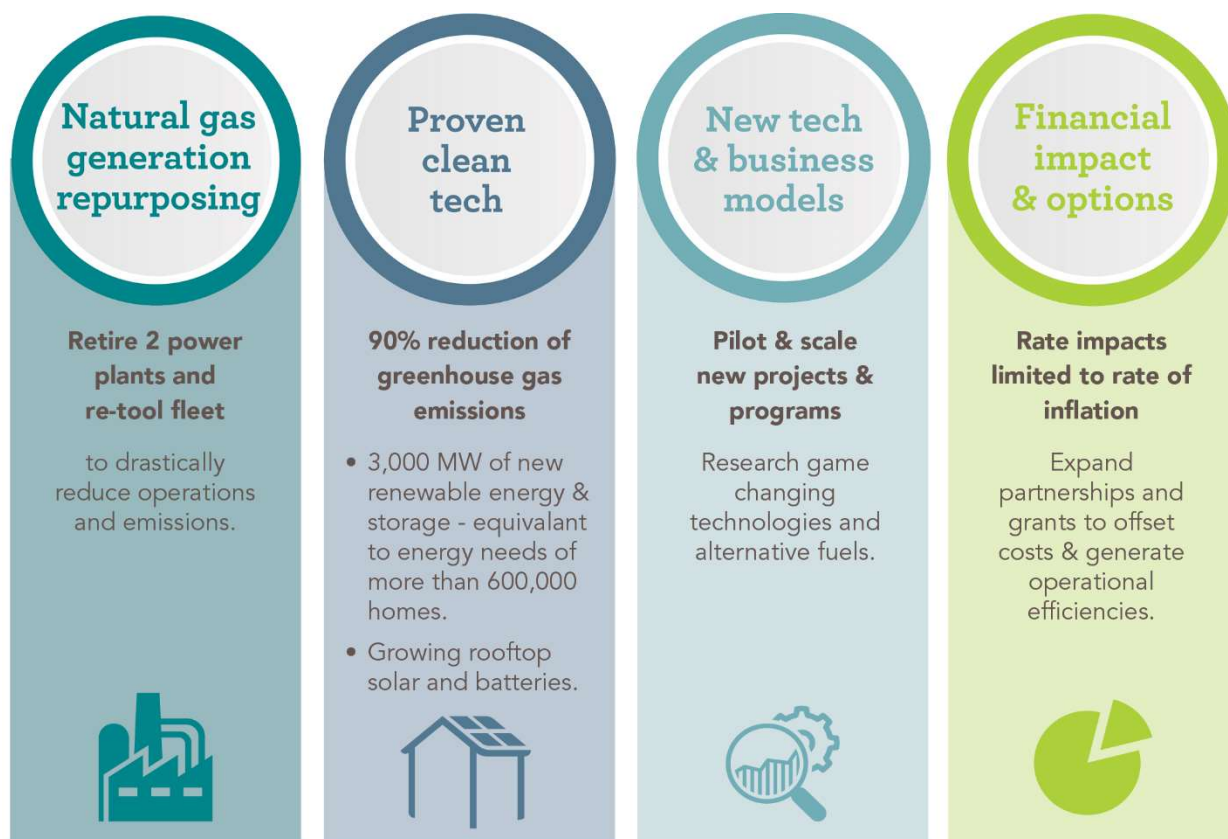
We have an opportunity to bring together a wide range of stakeholders — businesses, elected officials, community leaders and organizations, think tanks, academia, regulators, start-ups, native tribes, venture capitalists and others to align resources for maximum impact. We'll partner with others to develop technology, healthy ecosystems, find innovative sources of

funding and develop new business models. We will also need to work closely with regulators with respect to climate-friendly policies and regulations that encourage electrification in the building and transportation sectors, which are currently the largest emitters of carbon/greenhouse gases in California.

Our 2030 Zero Carbon Plan is a road map with the flexibility needed to adjust to changing technology and customer preferences to completely eliminate the use of fossil fuels in our electricity production by 2030. With the clean energy technology in our power supply today, we expect to be able to reduce our carbon emissions by 90%, without compromising reliability or our low rates. Eliminating the last 10% will be more challenging and will require SMUD to take bold actions and pioneer new game-changing technologies.

To achieve zero carbon, we're focused on four main areas:

- **Natural gas generation repurposing.** Eliminating greenhouse gas emissions from our power plants is essential to reach our goal of zero carbon. We're focused on reimagining our existing generation portfolio to eliminate greenhouse gas emissions through retirement, re-tooling and using renewable fuels.
- **Proven clean technologies,** which are carbon-free technologies available today, including solar, wind and geothermal energy and battery storage. We'll significantly expand our investments in these technologies and adjust our plan as we progress in the other three areas.
- **New technologies and business models,** which are technologies that are either currently unknown or are not ready for large-scale adoption due to price, reliability or other factors. We'll launch pilot projects and programs to test and prove new and emerging technologies and develop paths for prioritizing technology adoption and scaling.
- **Financial impact and options.** We're focused on making sure achieving our zero carbon goal is possible at a reasonable cost that minimizes rate increases for our customers. We'll do that by identifying savings and pursuing partnerships and grants that support the Plan.

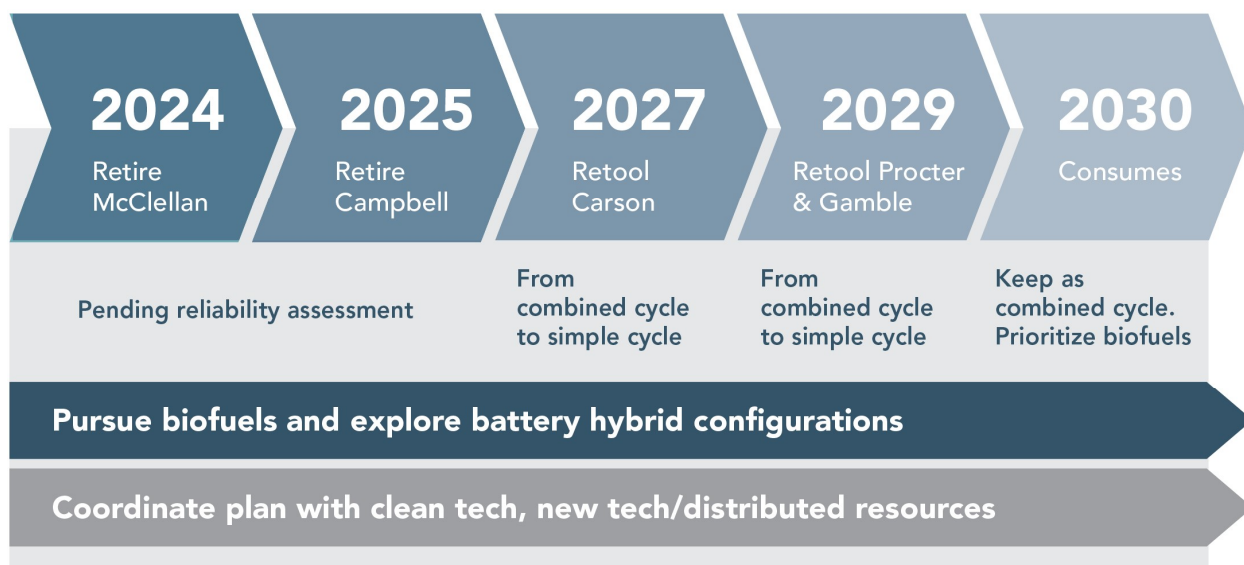


We're committed to eliminating carbon emissions in our power supply while recognizing flexibility is needed to adapt as new technology emerges, costs decline and our customers adopt more distributed energy resources and other technology. While pursuing each of the four areas will be important through 2030, activities may accelerate or decline in individual areas based on overall progress and advancements in specific areas.

### Natural gas generation repurposing

Our gas power plants provide low-cost, reliable energy. While recent investments mean SMUD's Cosumnes Power Plant is the most efficient combined cycle gas plant in California, today our gas plants are our main source of greenhouse gas emissions, so retiring and/or refueling them is a significant part of how we'll reach zero emissions. We looked at a variety of options in developing our 2030 Zero Carbon Plan.

We believe our gas power plants can continue to play a vital role to support reliability without emitting greenhouse gases. By retooling two of our plants from constant operations to become more flexible peaking units, we can drastically reduce their use and carbon emissions while maintaining most of their capacity. We're targeting operating them on biofuels such as renewable gas from landfills, biodiesel or other renewable sources when they'll need to operate for reliability.



Our Campbell and McClellan gas plants are located in areas already affected by air pollution. Modifying or retiring these plants will bring air quality benefits to these historically under-resourced communities because they're located in areas of SMUD's territory with some of the highest environmental sensitivity scores. Based on our studies to date, we believe we can retire McClellan in 2024 and Campbell in 2025 and replace them with proven clean technologies. Final decisions about the retirement of these plants will be based on additional reliability studies and discussions and engagement with the community.

Our Plan, which includes retiring two power plant and retooling other, will reduce our emissions and improve air quality in Sacramento. Below is the summary of our plan to retire, retool and minimize the use of natural gas at our plants.

Power Plant	Generator Type	Unit	Capacity (MW)	Fuel Source
Sacramento Power Authority at Campbell Soup	<b><u>Retired*</u></b>			
McClellan Gas Turbine	<b><u>Retired*</u></b>			
Central Valley Financing Authority at Carson Ice	Combustion Turbine	1	50	Biofuels**
	Steam Turbine	2		<b><u>Retired</u></b>
	Combustion Turbine	3	50	Biofuels**
Sacramento Cogeneration Authority at Procter & Gamble	Combustion Turbine	1	50	Biofuels**
	Steam Turbine	2		<b><u>Retired</u></b>
	Combustion Turbine	3	50	Biofuels**
	Simple Cycle Peaking	4	50	Biofuels**
SMUD Financing Authority at the Cosumnes Power Plant	Steam Turbine	1	207	Waste Heat
	Combustion Turbine	2	207	Biofuels**
	Combustion Turbine	3	207	Biofuels**

\*Final generator configurations are pending reliability assessment.

\*\*Final 2030 fuel mix is to be determined. Dependent on options available and may include one or more of the following: hydrogen, biogas, renewable natural gas, biofuels.

## Proven clean technologies

Proven clean technologies are the relatively mature zero emission technologies available in the market today and have demonstrated reliability and cost benefits. Along with reimagining our natural gas power plants, proven clean technologies are the foundation of this Plan and we expect they'll help reduce our carbon emissions by about 90% by 2030, far exceeding the regulatory and legislative mandates in place today.

Proven clean technologies include utility-scale wind, solar, batteries, hydroelectric power, biomass, geothermal, as well as customer-owned solar and battery storage. Our Zero Carbon Plan includes a significant increase in investments proven clean technology over the next nine years, by SMUD and our customers.

## Utility-scale investments (2021-2030)

- **Local solar:** 1,100 to 1,500 MW
- **Regional Solar:** 100 MW
- **Local battery storage:** 700 to 1,100 MW
- **Wind** (various locations): 390 to 590 MW
- **Geothermal** (various locations): 100 to 220 MW

These utility-scale investment ranges are based on current and expected market conditions and costs for new technologies, recognizing market conditions can change quickly, impacting resource availability and costs. External market factors such as changes in





California and western U.S. electricity market rules also play an important role in resource adoption, as do legislative and regulatory changes. If emerging technologies develop faster than expected, we will adjust our proven clean technology strategy accordingly. Similarly, if costs for new technologies decline slower than expected or if promising research areas don't yield the expected results, we may need to scale up our investments in other areas.

### **Customer-owned adoption of solar and storage (2021-2030)**

- **Customer rooftop solar:** 250 to 500 MW
- **Customer battery storage:** 50 to 250 MW

We recognize our customers' investment in rooftop solar and battery technologies depend to a large extent on costs as well as overall customer sentiment about zero-carbon technologies. Investment estimates are based on today's forecast of probable adoption rates and the ranges reflect the uncertainty of costs associated with these systems over the next decade.

To safeguard reliability, it's also important that SMUD maintains a diverse resource portfolio that reflects different generation technologies and geographic diversity. So, our Plan includes intermittent renewable energy such as wind and solar as well as energy storage and geothermal resources that support reliability.

### **New technologies and business models**

Emerging technologies play a critical role in our Plan, specifically to eliminate the remaining 10% of carbon emissions. We'll look to emerging distributed energy resource options and large-scale new technology innovations. This includes focusing on new applications for customer-owned distributed energy resources by assessing the attractiveness, costs and reliability of emerging technologies and business models. After launching and evaluating pilot programs and projects we will evaluate, prioritize and scale the technologies and programs we expect will have the largest impact reducing carbon in our 2030 resource mix, especially in terms of short duration generation capacity. To that end, we're focused on four main areas of technology:

- Electrification.
- Education and demand flexibility.
- Virtual power plants (VPP) and vehicle-to-grid technology (V2G).
- New grid-scale technologies.

Taken together, we expect customer-owned resources and SMUD customer-focused programs will contribute between 360 and 1,300 MW of capacity to our grid by 2030, depending on the rate of customer adoption and the success of the programs and technologies we develop.

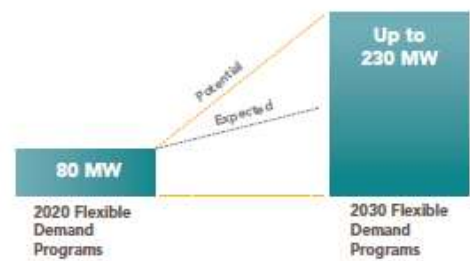
### **Electrification**

Electrification of buildings and vehicles is a priority for SMUD today to support the decarbonization of these sectors, which are the largest carbon emitters in California. Our 2030 Zero Carbon Plan continues to prioritize electrification of transportation as well as new and existing buildings. In addition to piloting innovative electrification programs, we'll continue to engage under-resourced and low-income communities to achieve bill savings and ensure access to clean technologies. Examples of potential programs include:



- Electrifying multi-family homes, schools, commercial buildings, and under-resourced communities.
- New construction smart homes.
- Financing options.
- Turnkey EV charging solutions for residential and commercial properties.
- Incentives for used EVs.

Education and load flexibility



Learnings from these pilot programs will help us identify the ones to scale. Pursuing external grants to help make these initiatives more affordable for all customers, we'll also advocate for regulatory changes and seek to collaborate regionally to accelerate the adoption of zero carbon technologies.

We're on an important journey with our customers and it's important to help ensure our customers understand the actions they can take to help support decarbonizing our region. Through pilot programs aimed at flexible energy use, we can help customers reduce their energy usage and bills at times when the stress on our grid is the highest. These types of universal customer programs reduce carbon emissions without requiring customers to spend money on advanced technologies. If successful, we'll scale our flexible demand programs as a lower cost alternative to large solutions such as utility-scale battery storage.

Customers will also have options to participate in programs that leverage the advanced and automation capabilities of their own devices, such as thermostats and electric vehicles, for deeper bill and carbon savings. We expect to develop about 165 MW of flexible load programs by 2030, but more could be possible as our programs continue to evolve to leverage advancing technology.

### Virtual power plants (VPP) and vehicle-to-grid technology (V2G)

These programs seek to optimize the operation of our customers' equipment and distributed energy resources, balancing customer and grid needs to maximize benefits for both, while compensating customers for the energy they supply into SMUD's grid for use by other customers.

A virtual power plant consists of many small devices often owned by customers and located at their homes and businesses. When operated and managed together in a coordinated way, they can become an alternative to a conventional utility-scale power plant. VPPs can include electric vehicles, batteries, thermostats and electric water heaters. By aggregating their capacity and flexibility, a VPP can mimic a power plant and provide services that help reduce electric peak demand during hot summer days or cold winter nights, potentially reducing the need for SMUD to build or buy other resources freeing resources to more aggressively invest in renewable energy.



We will launch several VPP pilot programs between 2021 and 2024 to demonstrate and test their reliability, cost and value compared to alternative resources. This will inform selection of the best model for bringing VPPs to scale between 2025 and 2030. Our goal is to develop a flexible program where customers can bring a variety of devices that we use as one VPP to help reduce demand during key times of the year. Our approach will include working with third-party providers to jointly test VPP programs that can offer grid services such as resource adequacy and short-term energy.

Vehicle-to-grid technology is a key area of VPP innovation. Electric vehicle batteries can be connected to the grid to help stabilize the grid by either providing energy to the grid during periods of very high electric demand or by taking a portion of surplus renewable energy available on the electric grid to charge the grid-connected vehicle. We anticipate vehicle-to-grid advancements will offer some of the benefits of stationary battery storage without the added investment of a separate stationary battery.

### New grid-scale technologies

While retiring and retooling our gas plants will drastically reduce emissions, the use of natural gas will not be completely eliminated unless we identify sufficient amounts of renewable fuels or develop alternative generation sources. Our initial studies indicate about half of our fuel needs after retooling can be met with renewable natural gas that we already have under contract. Additional fuel sources or technical advancements are necessary to close the remaining gap and fully eliminate our greenhouse gas emissions. We're looking at several options to address this:

- Biofuels and other clean fuels, including renewable natural gas, green hydrogen, biodiesel and ethanol.
- Long duration storage which could include technologies such as flow batteries, thermal storage and liquid air energy storage.
- Carbon capture and sequestration, including the Allam-Fetvedt cycle to assess the feasibility of this and similar technologies in the Sacramento region.
- Pumped storage hydro using our existing UARP dams and hydroelectric facilities.

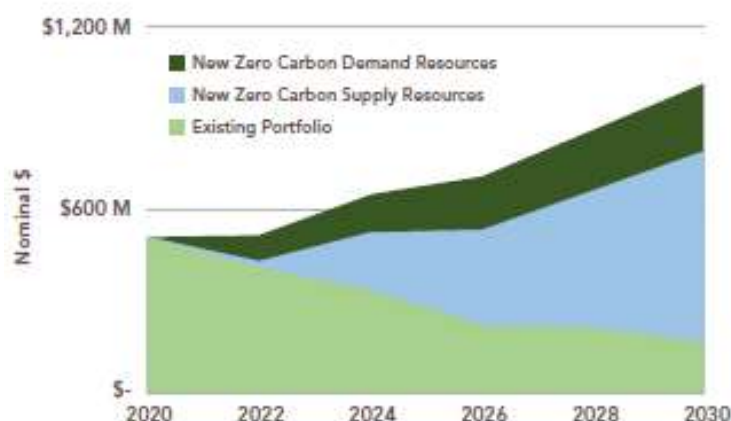
This research and the ability to secure sufficient volumes of biofuels will allow us to scale up the most promising technologies. We'll continue to evaluate and seek innovative options as new technologies emerge.

## Financial impacts and options

SMUD's rates are significantly lower than those of neighboring utilities and are among the lowest in California. We believe eliminating carbon emissions from our power supply by 2030 is achievable with rate increases that don't exceed the rate of inflation, which is consistent with California utility rate increases over the past 25 years. While these low rate increases are achievable, they will be challenging to achieve.

We've identified the need for between \$50 and \$150 million in sustained and ongoing savings to help offset the costs of our Plan, which we'll deliver through operational savings and pursuing partnerships and grants. We expect to work closely with community organizations, industry partners, government agencies and regulators to jointly develop and finance innovative solutions and pave the way for cost reductions in new and emerging clean technologies.

### Cost of SMUD's electricity supply 2020-2030, including Zero Carbon portfolio costs



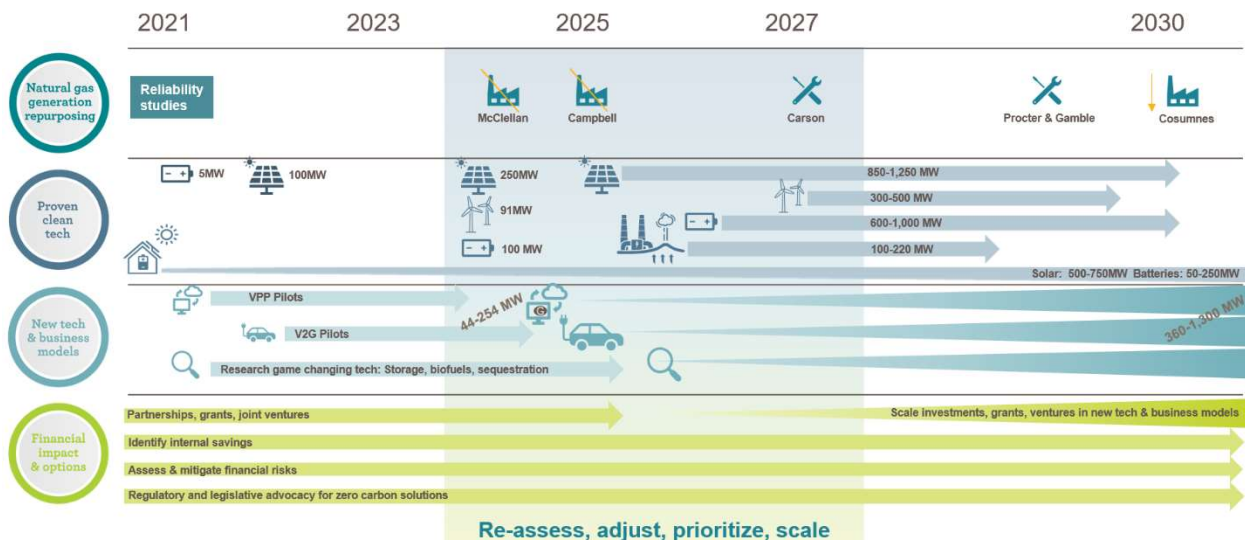
The estimated costs and rate impacts discussed in this section represent one possible outcome based on our current expectations for market developments and costs. There are many factors that could cause the costs for achieving our zero carbon goals to go higher or lower than our initial estimates presented here. For example, if costs for technologies such as solar and battery storage decline faster or more significantly than expected, we may be able to accelerate the pace of our carbon reduction efforts without sacrificing affordability. Conversely, if costs are higher than expected or if some technologies fail to deliver on their projected potential, the overall pace and choices of technologies may need to be adjusted. We expect to revisit the 2030 Zero Carbon Plan regularly to adjust as necessary to these changing factors.

## 2030 zero carbon action plan

Our initial analysis indicates SMUD can reach zero carbon by 2030, while recognizing that there are a number of unknowns and risks and we'll adjust our Plan as technology, customer adoption and other factors change. While the specifics of our long-term activities to support decarbonization will be adjusted based on what we learn through the early implementation of our Plan and the results of our research and pilot programs, we have a number of priorities for the first year of the Plan as summarized in the table below.

Year 1 Zero Carbon Plan implementation priorities
<p>Implement plan for the Natural Gas Generator Repurposing Strategy, including</p> <ul style="list-style-type: none"> <li>• Perform detailed studies of reliability, economics and environmental impacts of retiring McClellan and Campbell.</li> <li>• Research new utility-scale technologies, fuels and options.</li> </ul>
<p>Implement plan for the Proven Clean Technology Strategy, including:</p> <ul style="list-style-type: none"> <li>• Conduct locational analysis, system impact study and economic valuation and solicit counterparty offers.</li> <li>• Study strategic new technology options complementing the Natural Gas Generator Repurposing Strategy.</li> <li>• Explore delivery options for out-of-area renewables.</li> <li>• Develop and issue competitive solicitation for new proven clean technology projects.</li> </ul>
<p>Implement plan for New Technology and Business Models Strategy, including:</p> <ul style="list-style-type: none"> <li>• Perform information technology system upgrades to enable DERs and VPPs.</li> <li>• Include DERs in operations, distribution and grid planning processes.</li> <li>• Launch new customer-partner pilot programs for VPP Involving thermostats, EVs, rooftop solar and batteries.</li> <li>• Launch pilots for behavioral demand response “Flex Alert”, EV managed charging and vehicle-to-grid demonstrations.</li> </ul>
<p>Evaluate the 2030 Zero Carbon Plan for NERC reliability standards, system adequacy requirements, operational reliability requirements, and new reliability services contributions.</p>
<p>Assess system adequacy and reliability impacts, including:</p> <ul style="list-style-type: none"> <li>• Evaluate operational reliability requirements to manage the variability of solar and wind generation.</li> <li>• Evaluate grid reliability services contribution from virtual power plants, distributed energy resources, demand response and load flexibility.</li> <li>• Perform detailed studies of sub-transmission system impacts from the re-tooling of the Carson plant.</li> </ul>
<p>Set internal goals for operational efficiencies needed to manage risks to rate impacts.</p>
<p>Organize grant capture team to proactively seek opportunities for funding partnerships and research with manufacturers, vendors, government agencies, utilities and research institutions.</p>
<p>Engage government, agencies and policy makers</p> <ul style="list-style-type: none"> <li>• Brief policymakers on the 2030 Zero Carbon Plan.</li> <li>• Advocate for and support electrification policies.</li> <li>• Support cities’ and county General Plans and Climate Action Plans.</li> <li>• Connect with federal agencies and policy makers on climate action and our 2030 Zero Carbon Plan.</li> </ul>
<p>Identify new workforce skills needed to support zero carbon technologies.</p>
<p>Develop and implement a comprehensive regional communications, marketing, outreach and educational effort.</p>

## High-level summary of the key elements and actions in our 2030 Zero Carbon Plan.



We're pleased to release our draft 2030 Zero Carbon Plan for public comment. We'll use this input from our customers, community and other stakeholders to finalize our Zero Carbon Plan. Please submit written comments to [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon). You can also sign up for regular updates at [smud.org/BoardNotifications](https://smud.org/BoardNotifications).

## Introduction

In July 2020, Sacramento Municipal Utility District's (SMUD's) Board of Directors adopted a [climate emergency declaration](#), prompting SMUD to develop a bold and ambitious plan for reaching zero carbon by 2030 while ensuring we continue to provide safe, reliable, affordable and inclusive power to our customers and community. This 2030 Zero Carbon Plan is a flexible road map to eliminate greenhouse gas emissions (GHG) from our power supply by 2030. It was developed following completion of several technical studies.

We have identified investments in local solar and large-scale batteries as well as a plan to repurpose and retire our natural gas power plants. We can achieve our goals most effectively through customer partnerships that embrace more distributed energy resources (DERs). Our studies found that new technologies and renewable fuels are needed to achieve our goals most cost-effectively.

This Plan was developed in collaboration with our stakeholders through several events and public meetings between December 2020 and March 2021. As we implement this flexible plan, we'll continue seeking inputs and ideas from our customers, community and other stakeholders.

This report is organized as follows:

- **SMUD's carbon reduction journey** is a retrospective look at the work SMUD has done so far to reduce our carbon footprint.
- **Building resilient customers and communities** is a snapshot of the work SMUD has undertaken to support under-resourced communities and low-income customers.
- **A history of planning for the future** is a brief summary of our previous long-term plan and aspects we're building upon in this 2030 Zero Carbon Plan.
- The **Energy system overview** provides a snapshot of our current energy delivery system, which is the foundation that we'll build our 2030 strategies upon.
- Then, we focus on the development of our 2030 Zero Carbon Plan. This includes an overview of our **2030 Zero Carbon Plan**, our **public consultation process** and describes the **plan structure**.
- Our plan is divided into four strategies – **natural gas generation repurposing, proven clean technologies, new technology and business models** and **finance** – that make up our flexible road map to eliminate GHGs from our power supply by 2030.
- Implementation of our plan will require close coordination with local, state and federal regulations. Our **government affairs** strategy provides a plan to ensure we're closely coordinated with many governing partners.
- Our report concludes with our **Action plan and risk mitigation strategy**.

## About SMUD

SMUD is a community-owned, not-for-profit utility that generates, transmits and distributes electricity. SMUD began serving Sacramento in 1946 and is now the nation's 6<sup>th</sup>-largest community-owned electric utility, serving a population of over 1.5 million people and providing services to about 640,000 residential and commercial customers. Our service territory is nearly



900-square-miles and includes California's capital city, most of Sacramento County and small slices of Placer and Yolo counties.

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*Our vision is to deliver clean energy with zero carbon emissions while maintaining our commitment to reliable service, sustainable communities and affordable rates.*

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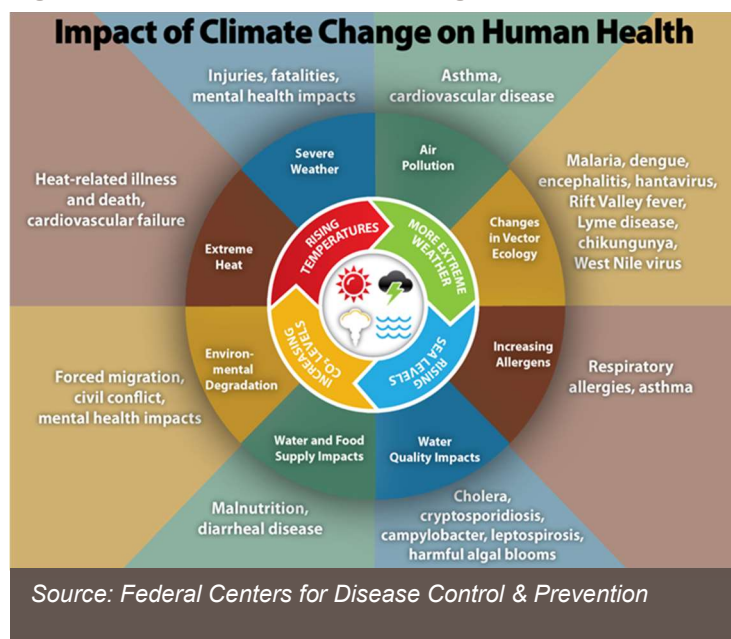
As a community-owned utility, SMUD is governed by a 7-member Board of Directors elected by voters to serve 4-year terms. Our Board of Directors determines policy direction and appoints our Chief Executive Officer & General Manager, who is responsible for SMUD's day-to-day operations.

## Climate change

Temperatures around the world are rising and 2020 tied with 2016 as the hottest years on record.<sup>1</sup> Climate science has shown that fossil fuel combustion and land use changes disrupting carbon sinks<sup>2</sup> have greatly increased atmospheric concentrations of GHGs, resulting in climate change and a wide range of cascading impacts to ecosystems and economies around the world. The changing climate is already impacting SMUD's operations, employees, customers, communities and plans for the future.

Locally, the impacts of climate change include extreme heat, droughts, wildfires, flooding, species loss, rising sea levels and human displacement. Research suggests that the number of extreme heat days (days when the highs exceed 95°F) in the Sacramento Valley will increase and, by the end of the century, could include four months each year.<sup>3</sup> Rising temperatures are anticipated to impact the productivity of nearly 20% of our region's workforce that work in high climate risk industries, such as manufacturing, construction and agriculture. These industries may experience labor productivity decreases between 1% and 2.2% by the late century.<sup>4</sup>

**Figure 1. Impact of climate change on human health**



<sup>1</sup> <https://www.noaa.gov/news/2020-was-earth-s-2nd-hottest-year-just-behind-2016#:~:text=It's%20official%3A%202020%20ranks%20as,an%20analysis%20by%20NOAA%20scientists.>

<sup>2</sup> Carbon sinks that occur in nature include plants, soil and the ocean, which naturally absorb atmospheric carbon.

<sup>3</sup> Risky Business Project. *From Boom to Bust? Climate Risk in the Golden State*. April 2015. Available online: <https://riskybusiness.org/site/assets/uploads/2015/09/California-Report-WEB-3-30-15.pdf>. Last access: 05 Jan. 2021.

<sup>4</sup> *ibid*

In the past, correlation in historical weather patterns, such as average temperatures or snowpack, could be used as reasonable predictors of customer electricity load and generation from SMUD's Upper American River Project (UARP) hydroelectric system. However, we're in a period of uncertainty where historical data is no longer a reliable indicator of the future. Prolonged droughts and lower-than-average snowpack results in less water available to generate hydroelectric power, which is one of the cleanest and most economical power sources we have. These challenges also present opportunities to accelerate our pursuit of sustainable, resilient and cost-effective solutions. SMUD is committed to evolving our operations and business practices to keep pace with these changes.

## Climate emergency

In recognition of the severity of the global climate emergency, in July 2020, SMUD's Board of Directors adopted a [Climate Emergency Declaration](#) requiring SMUD to work toward our most ambitious carbon reduction goal — carbon neutrality in our electric power supply by 2030. Through the declaration, the Board acknowledged a climate emergency within its jurisdiction and signaled that:

- The planning process will be open, transparent and will be explored in a public process with the Board.
- SMUD will collaborate with local cities, counties, agencies, businesses and other organizations.
- SMUD affirms its commitment to environmental justice principles and leadership through our Sustainable Communities Initiative.
- SMUD has made a strong commitment to find additional opportunities to accelerate decarbonization.
- By March 31, 2021, the CEO & General Manager will report on clear, actionable and measurable strategies and plans to reach SMUD's climate emergency goals.

Our accelerated carbon reduction journey builds on previous efforts and our latest resource plan: the [2040 Clean Energy Plan](#), which was accepted by the California Energy Commission (CEC) in 2019. 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 this 2030 Zero Carbon Plan being our strategy to achieve that goal.

To achieve our 2030 zero carbon goal, we must address our reliability needs, for which new and emerging technologies such as energy storage, flexible load, carbon capture and storage and renewable gas technologies will be needed. We'll also need to increase investment in new clean energy supplies, new and emerging technology and pursue new business models and partnerships.

## Global efforts to decarbonize energy supply

This Plan lays out an aggressive, flexible and inclusive clean energy pathway, with a goal of zero carbon that SMUD cannot and should not achieve alone. By working with other pioneering utilities, governments, businesses, agencies, community leaders and organizations, academia, start-ups and others, we will align resources to maximize carbon emission reductions with broad



and long-lasting impact. Our 2030 Zero Carbon Plan is part of a growing body of work that's necessary to combat this climate change emergency. As part of our climate emergency, our Board set a goal of achieving carbon neutrality by 2030.

Other, smaller utilities, such as City Light (Seattle) and the San Francisco Public Utilities Commission's Hetch Hetchy Power System (City and County of San Francisco) have already achieved carbon neutral operations. Both utilities have resource portfolios built around access to large swaths of hydroelectric power. At City Light, over 80% of delivered power is generated from hydroelectricity and Hetch Hetchy, 100% is from hydroelectricity.<sup>5,6</sup> Hetch Hetchy does have a small amount of non-hydro renewable generation, representing about 2% of the system (11 megawatt (MW) of solar, wind, and biogas). But, for utilities without access to significant hydro resources, like SMUD, achieving carbon neutrality will not be as straightforward. As shown in Table 1, SMUD's carbon reduction goals are among the most ambitious globally. More details are available in Appendix D: Global energy decarbonization efforts.

**Table 1. Global carbon neutrality and net zero goals**

Location	Target Year	GHG Reduction Goal
SMUD	2030	Carbon neutrality
Sacramento County	2030	Carbon neutrality
Puget Sound Energy	2030	Net zero GHG (carbon neutrality by 2045)
Lincoln Electric (Nebraska)	2040	Net zero GHG
Portland General Electric	2040	Net zero GHG
California	2045	Carbon neutrality
LADWP	2045	100% renewable electricity
Sweden	2045	Net zero GHG
Arizona Public Service Electric	2050	100% carbon free electricity
Madison Gas & Electric	2050	Net zero GHG
Ameren	2050	Net zero GHG
PSE&G	2050	Net zero GHG
Dominion	2050	Net zero GHG
Southern Company	2050	Net zero GHG
Orlando Utility Commission	2050	Net zero GHG, proposes carbon offsets for EVs
Alliant (Wisconsin)	2050	Net zero GHG, allows carbon offsets
Entergy	2050	Net zero GHG, allows carbon offsets
Duke Energy	2050	Net zero GHG, allows carbon offsets
DTE	2050	Net zero GHG, allows carbon offsets
Consumers Energy	2050	Net zero GHG, allows carbon offsets

<sup>5</sup> [https://www.seattle.gov/city-light/energy-and-environment#:~:text=Over%2080%25%20of%20the%20power,Skagit%20and%20Pend%20Oreille%20Rivers.&text=\\*City%20Light%20does%20not%20have,in%20its%20power%20supply%20portfolio](https://www.seattle.gov/city-light/energy-and-environment#:~:text=Over%2080%25%20of%20the%20power,Skagit%20and%20Pend%20Oreille%20Rivers.&text=*City%20Light%20does%20not%20have,in%20its%20power%20supply%20portfolio). Last Accessed: 24 March 2021

<sup>6</sup> <https://sfwater.org/modules/showdocument.aspx?documentid=16653>. Last Accessed: 24 March 2021

## Engaging with our under-resourced communities

Climate change is a critical public health issue which disproportionately impacts our under-resourced communities. The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity, now and into the future. It includes 17 sustainable development goals, which are an urgent call for action by all countries in a global partnership. They recognize that ending poverty and other deprivations go hand-in-hand with strategies that improve health and education, reduce inequality and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.<sup>7</sup> Similarly, the United Nations Declaration on the Rights of Indigenous Peoples recognizes that indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment. These global agreements have relevance to SMUD, our operations, our employees and our customers.

Closer to home, our under-resourced communities lack equitable access to many essential community components that we attribute with a high quality of life, including living wages and training opportunities, affordable housing, access to transportation and connectivity, health care access, nutrition, education opportunities, computer and internet access and a healthy environment. Our neighbors in these communities feel the physical impacts of climate change more acutely than wealthier communities while bearing little responsibility for the crisis, and history has shown that these communities often suffer unintended consequences when new social policies or strategies are introduced.

Involvement of all our communities is foundational to this plan and we recognize that, too often under-resourced communities are excluded from the process and conversation when goals and implementation plans are developed. SMUD recognizes the importance of partnering with all the communities we serve. We commit to reaching impacted communities as we work toward our goal of zero carbon.

If designed well and with citizens and communities in mind, climate action can avoid green gentrification and displacement and can help address some of the pre-existing social and economic inequalities in our region. Additionally, collaborative reexamination of indigenous practices that support healthy ecosystems can also help us build a more resilient region. The strategy for one city, one neighborhood, or even a single facility will not be a one-size fits all solution. We're committed to engaging all our community members so they may participate in building a plan that supports their community's vision for the future and may fully understand potential impacts of the plan.

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<sup>7</sup> For a full list of the UN's sustainable development goals, see Appendix B.

## SMUD's carbon reduction journey

For several decades, SMUD has been recognized nationally and internationally for our environmentally conscious and innovative renewable power and energy efficiency programs. Our commitment to zero emission and low GHG resources dates back decades, and in fact, began with the development of the UARP hydroelectric project in 1957. We continued clean energy leadership as we developed one of the first utility-scale solar photovoltaic power plants in 1984; our first solar-powered electric vehicle (EV) charging station in 1992 and our first community targeting net-zero energy in midtown Sacramento.<sup>8</sup>

SMUD strives to provide our customers with a sustainable power supply, which is defined as one that reduces SMUD's GHG emissions while assuring reliability of the system, minimizing environmental impacts on land, habitat, water quality, air quality and maintaining affordable rates relative to other California utilities. Our Board sets policy direction to for our sustainable power supply through Strategic Direction – 9 Resource Planning. The full text of SD-9 can be viewed [here](#).

In the 1990s, we were already buying renewable energy from wind, geothermal and biomass sources. By 1997, we were offering our first voluntary green pricing program, Greenergy®, to our customers. And in 2001, we established our first renewables portfolio standard (RPS), with a combined energy supply goal for our RPS and Greenergy program of 12% by 2006 and 23% by 2011.<sup>9</sup> By 2008, we established a separate RPS goal of procuring 20% of our retail electricity sales from renewables by 2010. SMUD was the first large community-owned utility in California to achieve a 20% RPS goal, and has continued to grow our portfolio of non-emitting resources over the past decade, reaching 33% in 2020.

Our commitment to addressing climate change was brought to the forefront in 2003 when, as a precursor to setting GHG reduction targets, SMUD became the first utility to certify our emissions inventory (2002) under the newly formed California Climate Action Registry.<sup>10</sup> Soon after, we were one of the first utilities to support the passage of Assembly Bill 32, California's landmark climate change legislation. In 2008, we committed to reducing our emissions by 90% below our 1990 levels by 2050, exceeding the state target of 80% below 1990 levels by 2050. And in 2009, we received the first Climate Change Leadership Award from the Association of Climate Change Officers. We've continued to exceed our goals and expect to be nearly 15% below our 2020 GHG emissions goal.<sup>11</sup>

Historically, energy efficiency programs have significantly contributed to SMUD's carbon reduction efforts. Helping our customers use less electricity has effectively offset increasing demand, managed peak energy use and helped customers save on their utility bills. With growth

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<sup>8</sup> For more information on our net-zero energy community in Midtown Sacramento, see <https://www.youtube.com/watch?app=desktop&v=fW2YtZ1eDI8>. Last Accessed: 24 March 2021.

<sup>9</sup> <https://www.smud.org/-/media/Documents/Going-Green/PDFs/SMUD-RPS-Guidebook---FINAL-1.ashx>. Last accessed: 14 December 2020.

<sup>10</sup> [http://www.caclimateregistry.org/wp-content/plugins/carrot/carrot\\_reports/sacramento-municipal-utility-district-2002-ca.pdf](http://www.caclimateregistry.org/wp-content/plugins/carrot/carrot_reports/sacramento-municipal-utility-district-2002-ca.pdf) last accessed 16 December 2020.

<sup>11</sup> Emissions values take some time to finalize. 2020 emissions values won't be finalized until Summer 2021.

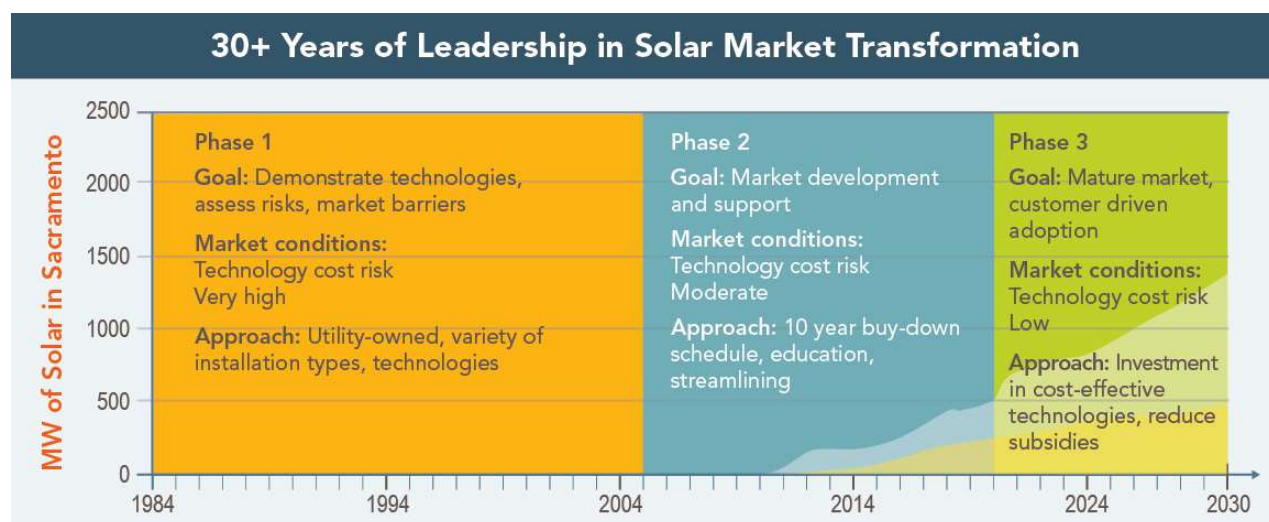
in renewable energy supplies and the imperative to reduce carbon emissions, our approach to energy efficiency has expanded and now integrates building electrification into our programs to help customers take advantage of clean, renewable electricity supplies. We've also developed innovative program offerings, allowing our customers a choice to voluntarily buy additional renewable energy.

By 2012, we reduced our normalized emissions by 30% below 1990 levels and by 2019, our normalized emissions were 45% below 1990 levels.<sup>12</sup> Accepted by the CEC in 2019, our [2040 Clean Energy Plan](#) outlines a path to net-zero emissions by 2040. [Read our 2018 Sustainability Report](#) for more detailed information about our commitment to clean energy.

## Pioneer in solar energy and market transformation

For over 30 years, SMUD has been promoted and encouraged the adoption of solar technologies, helping commercialize this important carbon-free resource. In the early 1980s we saw that solar photovoltaic systems (PV) – although very expensive at the time – had great potential for the future. With this understanding, we set out to overcome roadblocks to developing solar energy through a robust long-term market transformation strategy.

**Figure 2. Leadership in the solar market transformation**



By implementing these strategies, SMUD created a body of knowledge and experience that supported market development and growth, lowered costs and helped the solar market transition to the mature, profitable, large-scale global industry we have today.

<sup>12</sup> To assess our progress in achieving our GHG reduction targets, we “normalize” our emissions to ensure that beneficial weather or hydroelectric conditions do not understate or overstate our carbon reduction achievements. In 2019, these normalizations increased our reported normalized emissions by nearly 10%.

## Bringing solar to our communities

In the early 1990s, SMUD was one of the first utilities to develop a rooftop solar program, installing hundreds of utility-owned solar systems on the roofs of customers' homes and businesses. Installations helped SMUD evaluate the technology and paved the way for a transition to a customer-owned program in the late 1990s. At this stage, SMUD made large purchases of modules and inverters, designed as solar system kits, and offered them at a discounted price to customers. We trained installers, which helped establish regional solar contractors who helped to scale the technology, giving a much-needed boost to the solar industry.

As part of our Solar Advantage Home program, launched in 2001, and our later SolarSmart Homes® program, we worked with local home builders to promote installation of solar coupled with efficient new homes exceeding building code requirements. By doing so, the program demonstrated how rooftop solar systems can be integrated into new home design and construction. Over the course of the program, 4,000 new SolarSmart Homes were built.



By 2007, we launched our part of California's Million Solar Roofs initiative. Through this ambitious program, we committed \$125 million in incentives for the installation of solar at homes and businesses. The program was a success, reaching its goal of 130 MW, with solar on more than 15,000 homes and businesses in Sacramento, helping the market transition to a mature solar industry.

We've learned a lot from our 40-year experience with solar. Through the 1980s and 1990s, we found ways to reduce costs and improve performance. Our first utility-scale solar

development was our Rancho Seco PV 1 plant in 1984, one of the first utility-scale PV plants in the world, which established Sacramento as an early leader in solar. By 2009, SMUD signed feed-in tariffs (FIT) with projects totaling 100 MW, powering on average over 20,000 homes per year. Earlier this year, we welcomed our newest solar project at Rancho Seco, a 160 MW solar PV project capable of powering over 36,000 homes per year.

## Incorporating wind technology

Wind turbines are now one of the most economical energy generating technologies, and in most cases, are lower cost than fossil-fuel generators.<sup>13</sup> We also have access to a great wind resource region at our doorstep in Solano County. Our Solano Wind Farms produce enough electricity to power more than 63,000 homes per year.<sup>14</sup> We plan to expand these projects by replacing some older, less efficient turbines with larger and more efficient units. This expansion will reduce the footprint of our wind projects while increasing net output by over 70 MW, enough

<sup>13</sup> <https://www.lazard.com/media/451419/lazards-levelized-cost-of-energy-version-140.pdf>

<sup>14</sup> Based on 750 kWh/month average household electricity use.



to power more than 21,000 homes per year. In 2019, we began purchasing energy under contract for 200 MW of wind energy from a wind-rich region in New Mexico.

## Hydroelectric power

We own and operate a hydro project in the Upper American River called the UARP. The UARP contains multiple powerhouses along the same waterway, which means the same “fuel” is used over-and-over as water flows downstream from one powerhouse to the next. Operating and maintaining our hydro facilities requires a license from the Federal Energy Regulatory Commission (FERC), which issued SMUD a new 50-year license in July 2014.<sup>15</sup>

An additional 6% of our power generation is provided by hydro power purchase contracts, allowing us to meet an average of about 20% of our total power needs with carbon-free hydro generation. Today, including our hydroelectric resources and other carbon free resources, our energy mix is on average 50% carbon free.

## Investments in other renewables

Although solar, hydro and wind comprise the largest share of our zero GHG emission portfolio, our procurement of biomass and geothermal power adds diversified value to our portfolio. These resources generally provide constant generation over time. Some of these resources may also be able to respond to fluctuations in load and provide other reliability services.

### Biomass resources

Biomass is a local renewable resource and abundant in nature. Biomass resources include residues from forestry (like dead and dying trees, vegetation materials from the UARP), urban wood wastes, food waste, agricultural residues, dairy wastes and other organic wastes. These biomass resources can be converted to bioenergy via thermochemical and biochemical processes for power, heating, cooling, fuels, chemicals, renewable natural gas (RNG), biogas, hydrogen and other value-added products with zero net and negative carbon emissions.

Occurring abundantly in nature, biomass can be a problematic waste if unmanaged and should be disposed of in a sustainable and environmentally safe manner. Ideally, some biomass can and should be composted for soil amendments. However, compost demand cannot address the full amount of the waste problem. Another solution is converting the left-over waste to renewable biomass energy.

Although bioenergy (biomass-derived energy) generally requires combustion technologies, the alternative dispositions of biomass are usually more harmful to the environment or public safety than the impacts of energy production. Bioenergy can also be a critical strategy to reduce potent climate pollutants, such as short-lived climate pollutants (SLCPs). According to the California Air Resources Board (CARB), increasing bioenergy – especially biogas production and use – is

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<sup>15</sup> FERC’s new license order for the UARP can be found here: <https://www.smud.org/-/media/Documents/In-Our-Community/Recreational-Areas/UARP/Hydro-License-Compliance/License-and-Amendments/FERC-Project-No-2101-Order-Issuing-New-License-07-23-2014.ashx>. Last accessed: 11 December 2020.

critical to reduce SLCPs, which can be tens to thousands of times more damaging to the climate than carbon dioxide.<sup>16</sup>

The decomposition of biomass at landfills, wastewater treatment plants and dairies create methane (essentially natural gas) and other pollutants that can be greatly mitigated through collection of the gases. Biomass collected through forest thinning and wildfire mitigation projects are beneficial because they provide revenue for thinning projects and avoid pile burning or catastrophic wildfires.<sup>17</sup>

SMUD has a long history of purchasing biomass energy, including from large generators in Washington state and small local dairies. Currently, we procure energy from Sacramento's Kiefer Landfill as well as landfills in Yolo county and biogas from Sacramento's Regional Sanitation District.<sup>18</sup> We have also supported the development of five digesters at local dairies.

### **Geothermal**

Geothermal energy takes advantage of temperature differences within the earth's crust, such as areas hot enough to produce steam from water. This steam can be used in steam turbines – one of the oldest methods for powering machines. This resource is valuable because geothermal energy is a constant power source, unlike intermittent wind and solar energy.

There are ideal locations for geothermal development throughout California, including the Imperial Valley and Sonoma County as well as sources in Nevada that are accessible via our existing transmission line. We have been buying geothermal energy since the early 1980s and currently receive 52 MW annually through contracts in California and Nevada. That's enough to power more than 38,000 homes per year.<sup>19</sup>

## **Giving our community tools to confront climate change**

Undisputedly, California is a national leader in addressing climate change, and SMUD's goals are even more ambitious than those set forth by the state. Our commitment to improving the quality of life for our customers and community is evident through our progressive policies and outcome-driven actions. We've demonstrated success in providing low carbon energy solutions to our customers and implementing robust, community-focused programs aimed at conserving energy and accelerating the transition away from a fossil-fuel based economy toward an economy that supports sustainable resources and sustainable communities.

### **Community partnerships and programs**

We have a robust portfolio of customer programs that reduce GHGs by using or producing energy more effectively through energy efficiency, electrification, renewables, energy storage and EVs. Programs like Greenergy, SolarShares®, Shade Trees and a variety of incentives

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<sup>16</sup> CARB. *Short-Lived*

*Climate Pollutant Reduction Strategy*. March 2017. Available Online: [https://ww2.arb.ca.gov/sites/default/files/2018-12/final\\_slcp\\_report%20Final%202017.pdf](https://ww2.arb.ca.gov/sites/default/files/2018-12/final_slcp_report%20Final%202017.pdf). Last accessed: 4 March 2021.

<sup>17</sup> <https://www.placer.ca.gov/1810/Biomass>. Last accessed 3 March 2021.

<sup>18</sup> <https://www.regionalsan.com/biogas-recycling>. Last accessed 23 February 2021.

<sup>19</sup> Based on 750 kWh/month average household electricity use.

support sustainable growth within our region by offering customers a choice of energy solutions that fit their unique needs.

Our workforce outreach programs help our community learn about and prepare for careers at SMUD. Programs include Career Ambassadors, paid high school and college internships and college scholarships. With an increased emphasis on zero carbon technologies, it's even more important that the workforce of the future is prepared for these new careers.

Finally, influencing the private sector to develop clean energy goals involves educating them about the impacts of climate change and highlighting opportunities to partner with SMUD in order to reach their goals. Through our Sustainable Communities program, we're facilitating collaborations by leveraging our entire partnership portfolio. Collective action is key to our success as climate change cannot be solved by any one stakeholder acting alone. Cross-sector collaboration is essential to holistically address systemic challenges, and partnerships are vital to incentivize businesses to take action to address this climate emergency.

### Energy efficiency and electrification

SMUD has been offering programs to help our customers save energy for more than 50 years, delivering significant carbon reduction and billions of dollars of savings to SMUD and our customers. In the 1990's, we launched an initiative to fund and promote energy efficiency savings equivalent to the amount that could be produced by a 500 MW power plant annually, and we were recognized nationally for our energy efficiency leadership. In 2006, we adopted a goal of getting 1.5% of our annual retail sales forecast from energy efficiency programs and exceeded the resulting annual targets each year from 2009 through 2020. Recent efforts have helped our customers become more energy efficient. These programs include:

- **Express Energy Solutions:** Provides incentives to qualified contractors for high-efficiency equipment across a variety of end-uses: lighting; heating, ventilation, and air conditioning (HVAC); refrigeration and food-service equipment as well as supporting the conversion from gas to electric equipment.
- **Complete Energy Solutions:** Comprehensive energy audits of small- and medium-sized businesses with a customized report recommending energy improvements, estimated savings, estimated cost and payback. Then an administrator assists the customer in hiring a contractor to complete the project. The program also supports the conversion from gas to electric equipment.
- **Savings by Design:** Provides incentives to avoid natural gas consumption through electrification, along with incentives for classic energy efficiency measures. The program incentivizes efficient construction via two participation methods: A performance approach tailored to the customer's unique building or a simple prescriptive approach.
- **Residential new construction of all-electric homes:** Provides incentives to builders and their design teams for residential developments of all-electric homes and neighborhoods.
- **Advanced Home Solutions:** Encourages homeowners to improve their home's performance through insulation, sealing and conversion to all-electric, efficient equipment. Implemented as a contractor-driven program, customers are eligible to receive incentives for HVAC, water heating and insulation improvements.
- **Appliance efficiency:** Our retail partnership program works with big box retailers to pay retailer incentives for all the energy efficiency items they sell in their stores.



- **Refrigerator/freezer recycling:** This program provides free pick-up and environmental recycling of old refrigerators and freezers.

In 2020, SMUD was the first utility in the country to adopt a carbon-metric for measuring in the impact of our efficiency programs, allowing us to define our success by the GHGs these programs reduce and embracing the use of energy during low GHG emission times. Our focus on electrification means we'll nearly triple the carbon savings impact of our energy efficiency programs by 2030, relative to an electricity efficiency-only framework.

## Greenenergy

Recognizing many of our customers wanted to power their homes with green energy, SMUD launched Greenenergy in 1997. This first-of-its-kind program gave our residential customers the option of buying renewable energy to serve their home energy needs, up to 100% of their use, by adding a flat fee to their standard electricity bill. As one of the most successful utility green pricing programs, 13% of our customers participated in 2020.

## SolarShares – a new model to expand access to solar energy

As we worked to develop a robust rooftop solar energy market in Sacramento, we recognized that some customers could not install solar on their homes, due to cost, home ownership, orientation of their home, tree shading or other factors. We also recognized that despite its high price, utility-scale solar was still far less expensive than rooftop solar. That's why in 2007,



SMUD launched SolarShares. Initially, our SolarShares program was served by a 1 MW PV project located in Sacramento. Within 6 months, the program was fully subscribed, resulting in a waiting list for those customers who were interested in future opportunities to subscribe. In 2016, SMUD expanded SolarShares to commercial customers who were looking for new options to meet their sustainability goals. In 2019, our original residential SolarShares program closed to new participants.

Following our SolarShares program, in 2019, SMUD created a new community solar program that provides new home builders with an alternative option to meet California's mandate that new homes include solar. This program, Neighborhood SolarShares®, was approved by the CEC in 2020 as an alternative to rooftop solar systems in areas with dense trees or limited rooftop space.

## Sacramento Shade Tree program

Beyond electricity, we've invested in carbon sequestration through our 30-year partnership with the Sacramento Tree Foundation. Not only do trees cool homes naturally and beautify our neighborhoods, they also produce oxygen and store carbon. Since 1990, the program has resulted in planting more than 600,000 trees, helping Sacramento maintain one of the leading urban tree canopies in the world. Our Sacramento Shade Tree program has evolved to address

climate change and the need for sustainable urban and community forests by expanding both the number and types of trees offered, including evergreen trees. Additionally, the program supports environmental equity by planting and stewarding trees in under-resourced communities.

### Electric transportation incentive programs

SMUD has long been committed to the advancement of electric transportation and we currently offer incentives, expert advice and assistance to customers to help them transition to electric transportation. Our residential programs have been expanded to include online EV purchasing tools for our customers looking to purchase an EV. Customers also continue to receive an EV rate discount, which incentivizes them to charge their vehicles during off peak hours. Through the California Clean Fuel rewards program, we support customers in receiving up to \$1,500 for the purchase or lease of a new Battery Electric or Plug-in-Hybrid vehicle.<sup>20</sup> Our commercial EV program offers workplace and multi-family customers incentives for EVs and charging equipment. Additionally, we are partnering with the CEC to offer incentives for the purchase and installation of fast charger infrastructure.

### Customer engagement programs

We engage with our customers and community to inform them about our programs, rebates and incentives and other initiatives such as our 2030 Clean Energy Vision and 2030 Zero Carbon Plan, while encouraging their involvement and partnership. Our educational and awareness communications are critical to informing and including our customers in new programs and initiatives.

SMUD's Community Education and Technology Center provides energy efficiency and sustainability education, along with new energy technology evaluation, to areas students and our residential and commercial customers. Through workshops, events, videos and other channels, SMUD supports our commercial, residential and kindergarten through university students with the knowledge and ability to better control their energy expenses, be more sustainable in their energy consumption and get more value out of their energy use.

- **Residential and Commercial education:** We offer a range of seminars, webinars and other courses to educate commercial and residential customers on a variety of topics including EVs, energy efficiency, lighting, induction cooking, building standards and more.<sup>21,22</sup>
- **Outreach and awareness:** Annually, SMUD supports hundreds of low-income outreach and awareness presentations and education events with community partners. These events provide information about our low-income programs like our Energy Assistance Program Rate, our Medical Equipment Discount (MED) Rate and energy efficiency and electrification education.
- **Kindergarten through university education:** SMUD uses a variety tools to help train the next generation of energy leaders about sustainability and the environment. On a

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<sup>20</sup> For more information on the Clean Fuel Rewards program, see: <https://cleanfuelreward.com/>

<sup>21</sup> Businesses can find our commercial education videos, interactive online courses and webinars on [SMUD.org/Workshops](https://SMUD.org/Workshops).

<sup>22</sup> Available on [SMUD.org/Learn](https://SMUD.org/Learn)

yearly basis, the Community Education and Technology Center offers regional science, technology, engineering and math competitions. <sup>23</sup>

### Research and development pilots

A robust approach to research and development enables us to deliver innovative products, programs and services that provide solutions our customers care about. This allows us to test innovation in a controlled setting or with a modest number of customers, making refinements along the way as we expand the opportunity for the larger customer base. These efforts ensure that SMUD takes a measured approach at investigating viable alternatives to today's technology and business solutions in a low-risk setting. This is a core component preparing our organization for deeper decarbonization.

Our climate journey has benefited from the innovative solutions, products and services resulting from our investments in research and development projects. These projects integrate emerging technologies and new business models into our customer offerings in a way that benefits our customers and community. SMUD's research and development vision is rooted in achieving excellence and leadership in four foundational pillars.



**Excellence in technology and services:** Cultivate emerging technologies, advanced applications and innovative services to achieve operational excellence in delivery of products and services for our customers.



**Safe and reliable grid integration:** Enable safe and reliable integration, operation and visibility of DERs, grid-scale storage and large-scale renewables into the electric grid, and prepare for the migration to a distributed and transactive grid.



**Leadership in sustainability:** Further SMUD's environmental and sustainability leadership role in the energy industry by informing SMUD's strategy to reduce regional GHG emissions, advance sustainability technology and direct climate readiness planning.



**Strength in economics and markets:** Prepare for the delivery of customer products and services, enable customer participation in new energy business models and identify new approaches to SMUD's participation in energy markets to maintain financial strength.

Our research and development strategies focus our activities in areas that show the most promise for improving the delivery of our core business. This ensures our research strategies address existing goals defined by SMUD's Board of Directors as while keeping an eye on the horizon for energy industry uncertainties and technology advancements that could change the existing energy delivery paradigm. Maintaining strong research and advancement strategies that better meet customer needs has given SMUD a position of industry influence in progressive policy, advanced standards development, emerging business models and market transformation.

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<sup>23</sup> More information can be found at [SMUD.org/Education](https://www.smud.org/Education).

SMUD's commitment to research has demonstrated progress in areas once considered cutting edge that are now standard operations. We've strategically leveraged research to advance change in high-impact areas while simultaneously mitigating financial, operational and customer experience risks. For example, SMUD's Time-of-Day (TOD) rates were born out of the nation's most comprehensive time-of-use experimental research study exploring the impacts of default and opt-in time-based rates on customer engagement, peak load and customer bills.

SMUD is rethinking the systems and resources that we rely on for everything, from things like new sources of generation, building construction and how electricity-consuming devices in a building operate. We're looking at emerging technologies, alternative fuel sources and the evolution of grid operation and resource planning in a new way, creating opportunities for customers to be a partner in the grid of the future. Through our research and development, we strive to improve the efficiency of the grid and empower our customers to be active participants in an innovative, modern electric grid.

Our research and development group is home to seven technology innovation programs. The programs are highly interdependent and therefore most research efforts touch multiple programs. See our 2020 Innovation report to take a deeper look at recent projects.<sup>24</sup>

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<sup>24</sup> SMUD's 2020 Innovation report can be found at <https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/Innovations/Innovation-Brochure.ashx>.

## Building resilient customers and communities

Our customers and community are at the heart of all we do and we're recognized in our industry and by the customers as a leader in community involvement. As one of the region's largest and most influential employers, our goal is to enhance the quality of life for all our customers and improve vitality in all the communities we serve. Social, economic and environmental inequities exist in the in our region, impacting customers across our service territory. As a state, California ranks number one in power outages and rural and under-resourced communities are often at the margins of electrical grids.<sup>25</sup> Through strategic partnerships, focused investments, community engagement, diverse educational strategies and targeted programs that help our customers in greatest need, we'll ensure all our communities and customer households are partners with us in creating a clean energy future today, and for future generations to come.

### Growing together, embracing a low-carbon future

"The nation is still in the early stages of urban environmentalism, a complex subject with intricate and important histories. The potential for unintended consequences for people, for place, and for policy is great. [...] Citizens living in urban, poor, and people-of-color communities are currently threatened by gentrification, displacement and equity loss on a scale unprecedented since the Urban Renewal movement of the 1960s."<sup>26</sup> These communities are often the hardest hit in economic downturns and continue to be left behind in periods of economic boom. These same communities often suffer from significant environmental disparities including poor air quality and negative carbon emission impacts.

With federal policies and programs, municipalities, urban planners and developers are able to undertake "revitalization" projects. On the surface, these projects are beneficial, beautifying a sometimes-blighted area and improving the overall environmental conditions. But from the perspective of residents and small businesses, these efforts can be seen as non-inclusive and destroying what remains of the original community and neighborhood culture. In the absence of other policies (e.g., housing-based), rising property values that can accompany these "revitalization" projects can result in original residents being priced out of the market, displacing the very community the project was designed to help.<sup>27</sup> Often, this displacement is unintentional; the gentrification and displacement associated with federal reuse, redevelopment and revitalization programs may not be conscious or intentional, but local implementation of these programs often has that effect.<sup>28</sup>

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<sup>25</sup> League of California Cities. *Energy Resiliency and Independence for Rural Cities Webinar*. March 2020.

<sup>26</sup> National Environmental Justice Advisory Council. *Unintended Impacts of Redevelopment and Revitalization Efforts in Five Environmental Justice Communities*. August 2006. EPA. Available online: <https://www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf>. Last accessed: 12 February 2021.

<sup>27</sup> Coppinger, Kaitlin, Douglass Lee, Sari Radin, and Catherine Taylor. *Economic Development and Highway Right-Sizing: White Paper*. November 2018. FHWA. Available Online: <https://rosap.ntl.bts.gov/view/dot/38931>.

<sup>28</sup> National Environmental Justice Advisory Council. *Unintended Impacts of Redevelopment and Revitalization Efforts in Five Environmental Justice Communities*. August 2006. EPA. Available online: <https://www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf>. Last accessed: 12 February 2021.

A 2018 Brookings Institute Report – [Charting a Course to the Sacramento Region's Future Economic Prosperity](#) – found that between 2006 and 2016, the Sacramento metropolitan area ranked in the bottom-third of the 100 largest metro areas in composite rankings measuring improvements in growth, prosperity and inclusion, three critical elements of regional economies that work for everybody. These long-term trends reflect the downturn during the Great Recession and suggest it was deeper and more sustained in Sacramento than in other parts of the nation, particularly in our historically under-resourced areas.

In the five years after the Great Recession, we made some progress as a region; however, 34% of Sacramento's residents still live in households that do not earn enough to cover their basic expenses. These struggling families are disproportionately made up of people without a high-school degree as well as 47% and 42% of our region's Black and Hispanic residents, respectively.<sup>29</sup> Moreover, households in under-resourced communities spend a significant share of their income on energy bills. Households that earn less than \$50,000 annually, on average, for a family of four, spend around 16% of their income on energy costs. For families earning over \$100,000, the energy-to-income share drops to 3.5%.<sup>30</sup>

SMUD is at the center of both the climate crisis and the search for solutions. We need to act quickly to protect and provide for all customers, especially those most impacted and least represented. SMUD is already leading the way. Our Sustainable Communities partnership and low-income customer strategies collectively meet the unique needs of our customers where they are by acknowledging the intersectionality between the need for a zero carbon future and the need for economic equity, with the goal of creating a high-quality of life for all of our customers. . We work collaboratively with community organizations to deliver concrete practices such as delivering electric car sharing programs to under-resourced communities and increase portions of zero or low carbon affordable housing.

## Low-income programs, helping our neighbors

Simply stated, the objective of our low-income strategy is to help our customers most in need by providing them individualized solutions at the household-level that provide a feeling of control and a reduction to their energy burden. Our low-income strategy focuses on the distinct individual needs of our customer households by providing rate assistance and dwelling assistance programs for those customers in greatest need, as qualified based on income requirements (up to 200% of the Federal Poverty Level).

Although SMUD has been offering low-income weatherization for many years, our holistic low-income strategy launched in 2016, targeting households with high energy burdens to provide education and energy efficiency upgrades. These upgrades provide our customers greatest in need a feeling of control, reduces their energy burden and creates bill savings. We provided solar as part of an energy saver bundle in partnership Grid Alternatives where we targeted

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<sup>29</sup> Parilla, Joseph, Sifan Liu, and Marek Gootman. *Charting a Course to the Sacramento Region's Future Economic Prosperity*. April 2018. Brookings Institute. [https://www.brookings.edu/wp-content/uploads/2018/04/sacramentoregioneconomicprosperity\\_fullreport.pdf](https://www.brookings.edu/wp-content/uploads/2018/04/sacramentoregioneconomicprosperity_fullreport.pdf). Last accessed: 3 February 2021.

<sup>30</sup> <https://www.politico.com/news/agenda/2021/02/01/you-want-environmental-justice-look-to-energy-efficiency-463839>.



households as described by Senate Bill 535.<sup>31</sup> Additionally, our energy assistance program rate was changed in 2018 to provide those greatest in need the appropriate discount and dwelling solutions to address energy burden disparities.

We also offer low-income energy retrofits. These are complete energy retrofits for qualifying low-income households through four offerings: Weatherization, Energy Saver Deep Retrofit, Energy Saver House Bundle and Energy Saver Apartment Bundle. Through these programs, we've provided education and energy efficiency improvements to more than 24,000 low-income households since 2016, resulting in a reduction in energy burden and savings on customer bills. Since 2019 as part of our retrofits, we've replaced over 800 natural gas appliances with efficient electric appliances, saving on customers' bills, saving carbon and reducing air pollution from natural gas combustion. This effort is ongoing and will ensure our vulnerable populations are not left behind as we work toward our overall carbon reduction goals.

Looking to the future, our approach is three pronged:

1. **Increase** program offerings that align with participants' lifestyles to address energy usage and provide them greater feeling of control over their energy usage.
2. **Improve** sustainability and integrity of the low-income program by helping those most in need
3. **Strengthen** the safety net for Sacramento's under-resourced populations through strategic partnerships to positively impact customers in a more holistic manner.

Between 2020 and 2022, we have extensive plans to continue and increase our investment our low-income communities.

- We're proactively providing carbon reduction measures (via electrification) to ensure low-income customers aren't the last ones to adopt electrification.
- We're leveraging community partners like Habitat for Humanity to expand our reach, working to bring electrification, rooftop solar and the opportunity for EV home charging to all our customer households.
- We're refining our analytic approaches to ensure we're recruiting those most in need, and those with the highest energy burdens to prevent anyone from falling through the cracks.
- We're linking our efforts with local healthcare providers, improving access to carbon reduction measures that may impact medical-related outcomes and using our MED Rate to provide discounts to those that have a qualifying medical device.

We're always looking for creative ways to partner with our communities. One example is our partnership with Sacramento Housing & Redevelopment Agency to provide energy efficient refrigerators in their affordable housing complexes. Mutual Housing is another great example where we provided capital funding for energy efficiency upgrades before the affordable housing upgrades were completed. When planning for the Mutual Housing partnership, we solicited their

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<sup>31</sup> SB 535 requires the state to direct at least 25% of state cap-and-trade revenues to go to projects that benefit disadvantaged communities. It provides a very specific definition of disadvantaged communities as the top 25% scoring areas from CalEnviroScreen along with other areas with high amounts of pollution and low populations. For more information on this definition, see CalEPA's [report on Designation of Disadvantaged Communities](#).

feedback on a list of properties that they wanted to upgrade. We developed load shapes for each of the buildings and identified those that were most likely to benefit from the upgrades. Based on this information, we prioritized and selected complexes that could be upgraded and deliver more of an impact, leveraging SMUD and Mutual Housing funds. This capital allowed Mutual Housing to identify matching funds and justify some significant upgrades to 168 units' HVACs and 91 units with energy star refrigerators. After the upgrades were completed at one multi-family housing unit, the average energy usage fell by 39% during peak hours.

## Sustainable communities, strengthening our neighborhoods, together

The Brookings report was the catalyst for SMUD's Sustainable Communities program, launched in 2018, and builds on the significant work we've done to support under-resourced communities for decades. We're bringing attention to our historically under-resourced neighborhoods through our Sustainable Communities program, which aligns our partnerships, goals and investments around supporting healthy, vibrant and economically sustainable neighborhoods for all customers. In 2020, we launched an interactive Sustainable Communities Resource Priorities Map that identifies out which areas in our region need our help the most. The map helps analyze current data to indicate the local areas most likely to be underserved or in distress due to lack of community development, income, housing, employment opportunities, transportation and more. This information helps align our region's investments toward the goal of creating and supporting healthy, vibrant and economically sustainable neighborhoods.<sup>32</sup>



By partnering with policy makers, transit leaders, technology companies, health care providers and other community-based organizations, SMUD can maximize its impact and collaboration with community members to solve real problems for real people. We're leveraging our existing efforts, employees' skills and expertise and partnerships across the community to maximize our collective impact to help those most in need.

To promote workforce and equitable economic and community development, SMUD has invested in programs targeting economic development, community/environmental health and neighborhood outreach activities in vulnerable and under-resourced communities throughout the Sacramento region. To date, SMUD has invested over \$5 million into this effort, leveraging partnerships to increase impact in these areas of need. We have several workforce development programs and work with a variety of partners to support the development of solar and renewable energy across the greater Sacramento region. Our Sustainable Communities program works strategically to establish long-term partnerships with community-based organizations and businesses, working together on projects helping our

<sup>32</sup> Learn more at [smud.org/SustainableCommunities](https://smud.org/SustainableCommunities).



under-resourced communities, with the goal of increasing inclusion and closing the disparity gap in the Sacramento region. These partnerships create trusted relationships and serve as a foundation for the community outreach, engagement, collaboration and education needed to build livable, diverse and resilient communities. We've invested more than \$5 million in 130 local organizations to work on projects aligned with our Sustainable Communities program, many of which are advancing historically under-resourced populations closer toward our zero carbon future goal.

One such partnership is with Habitat for Humanity, Greater Sacramento, which we support through Sustainable Communities and our low-income programs. Together, we've brought solar and new energy solutions to hundreds of new and existing homes for low-income families, which will continue over the next few years. By adding EV plug-ins at most Habitat homes, SMUD is supporting the electric transportation revolution. Through these partnerships, we can help all our communities – from rural to suburban to urban – to be part of a zero carbon future.

One of the most promising aspects of a zero carbon future is the new jobs and careers that will be generated by building electrification, advanced storage strategies, energy management and increased EV usage and infrastructure needs. Healthy communities rely on a strong workforce where residents have opportunities to thrive economically and our 2030 Zero Carbon Plan will help create jobs and ensure that all communities are included in this economic development strategy. SMUD's Sustainable Communities program has developed an inclusive Regional Workforce Development strategy that ensures that all communities have access to job training, internships and pathways to careers needed to power our zero carbon future. We're working with partners like the Greater Sacramento Urban League, La Familia and Asian Resource Inc., to understand the challenges communities face in pursuing zero carbon careers and remove such barriers with programs and organizations like the California Mobility Center training program, the Energy Careers Pathways Program with Baker Energy and Grid Alternatives and our online STEM careers curriculum.

Looking to the future, we'll identify new skills needed and partner with community organizations to develop upskill or entry level training programs to support new zero carbon technologies. We'll develop customized strategies to attract and retain residents from under-resourced communities to these stable, economically mobile careers.

## Embracing zero carbon, together

The 2018 Brookings Institute Report, mentioned above, identified significant gaps in our community, prompting us to acknowledge that we have a duty to do more to intentionally address the disparities of the under-resourced communities we serve. By investing in under-resourced neighborhoods and working with community partners, SMUD is part of a larger regional mission to deliver energy, health, housing, transportation, education, workforce and economic development solutions to support sustainable communities.

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*As we implement our plan, we will be nimble and flexible while working to support customized solutions for all customers and communities. Our processes will be rooted in genuine engagement with a broad and diverse set of stakeholders, particularly those suffering from*

*inequality and the impacts of climate change. We will adopt policies actively designed with people, fairness and justice at the center of decision-making. Finally, we will work to ensure clear mechanisms exist – or can be put in place – for measuring, monitoring and evaluating the direct impacts of our 2030 Zero Carbon Plan.*

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We have a history of partnering with our community, but with our 2030 Zero Carbon Plan, it's time to build on what we're already doing – leading by example and engaging members of our community—and together we can create and work toward a shared vision for the future. We don't want to just “bring others along” with us, rather we want to empower our communities to work with us and take the lead in developing place-based strategies –to make sure that Sacramento communities are livable, resilient and ready to embrace a low carbon future. This can only be achieved by recognizing that our communities are diverse, and we need to develop strategies that respect and build upon our local, unique qualities and listen to the input of our communities.

## A history of planning for the future

SMUD's long history of affordable rates, reliable power and environmental leadership stems from innovation and our communities' desire to be cleaner and greener than the rest of California. When we plan for the future, SMUD must balance environmental considerations, customer rates and safety and reliability impacts. Like other utilities, we rely on an integrated resource planning (IRP) process to develop our long-term strategic environmental objectives to create resources and programs.

### Charting our future

Our low-carbon future is not limited to electricity supply, it also includes decarbonizing homes, businesses and transportation. This will take a coordinated effort, including our local partners, to decarbonize the region. To achieve our ambitious goals, we must work on the leading edge as we conduct research, deploy new technologies and develop innovative programs to consistently reduce GHGs in Sacramento.

As we look ahead, we must consider the role that solar, wind and other renewables will play in decarbonizing our power grid. These resources provide opportunities and some risks. We embrace these opportunities and will develop new strategies to mitigate the risks and achieve our goals. Some possible strategies include, storing energy, developing renewable fuels and aggregating customer devices to mimic a power plant.



In preparation for new DERs, we're working to develop a Distributed Energy Resource Management System (DERMS) to enable us to aggregate distributed resources like solar and storage to provide grid services and enhance shared benefits of these resources with all customers.

We're rolling out several energy storage programs for residential customers aimed at maximizing shared value between system owners and the broader SMUD customer base. Programs like our Smart Energy Optimizer program that launched in 2019 offer up-front and ongoing incentives in

exchange for access to a portion of a customer's battery to provide these grid services. Our commercial customers will see new shared investment programs like [StorageShares](#) that give participating commercial customers financial benefits similar to onsite storage, but the storage will be located in areas where our transmission and distribution systems are nearly at maximum capacity. This could displace investments we might otherwise need to make to increase grid capacity, and can provide additional value by participating in energy markets whenever transmission and distribution support is not needed.

We're expanding and further aligning our SolarShares and [Greenenergy](#) programs to reduce carbon emissions in Sacramento in the most cost-effective way. These programs have the potential to scale quickly without financially impacting other SMUD customers. We're also developing programs to increase access to solar and renewable energy at a reasonable cost for all residential customers.

As we look to the future, we're considering the successor to our net energy metering (NEM) rate for customers with rooftop solar, which is now our largest annual customer program expense, exceeding the combined cost of our entire portfolio of energy efficiency programs. In 2020, we completed a Value of Solar and Solar + Storage Study as a precursor to proposing more equitable rates that balance our collective desire to reduce carbon with the imperative that we do so in the most cost-effective manner possible for all customers.

## 2040 Clean Energy Plan

In 2018, the Board adopted our latest IRP, also referred to as the 2040 Clean Energy Plan, which put SMUD on an aggressive path to decarbonizing the greater Sacramento region with the ultimate goal of achieving net-zero GHG emissions electricity by 2040. As part of this plan, our GHG emissions strategy embraced supply and demand-side solutions and accelerated GHG reduction targets, including net-zero by 2040.<sup>33</sup>

This 2030 Zero Carbon Plan builds on the strategies in our 2040 Clean Energy Plan, our commitment to community-wide decarbonization and continued investment in electrification, energy efficiency and DERs. The 2040 Clean Energy Plan was, and still is, an aggressive and diverse investment strategy to minimize local GHG emissions while keeping our system reliable and our rates affordable.

### Electrification plan

Our 2040 Clean Energy Plan includes goals for electrifying buildings and transportation, and was one of the most ambitious and holistic carbon reduction pathways considered at the time. These goals called for electrifying approximately 80% of natural gas end uses and 70% of transportation end uses by 2040. For buildings, with these goals, SMUD would achieve carbon reductions by 2030 that were three times more than that of an equivalent plan focused only on energy efficiency.

Despite the many benefits of electrification – cleaner, cheaper, healthier, safer, better performing appliances – customer awareness remains relatively low. As we look to our 2030 Zero Carbon Plan, boosting awareness is critical to achieving both our IRP and zero carbon goals. To this end, SMUD will bolster communications about electrification to our customers through a comprehensive outreach and education program over the next several years that will last for decades. This includes introducing more online tools, expanding experiential “behind the wheel” events and launching more sophisticated direct, digital and broadcast marketing campaigns.

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<sup>33</sup> <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/Integrated-Resource-Plan.ashx>

## Energy system overview

SMUD delivers clean, reliable power to our customers thanks to our renewable energy portfolio, GHG-free hydro resources, efficient power plants and innovative customer-focused programs.

Our power is delivered via an integrated electric system that SMUD owns and operates, which includes generation, transmission and distribution facilities. We supply energy to our bulk power substations through a 230 kilovolt (kV) and 115 kV transmission system. This system transmits power from our generation plants and interconnects with Pacific Gas & Electric and the Western Area Power Administration (WAPA). Power is distributed throughout Sacramento and the entire SMUD territory with overhead and underground sub-transmission and distribution lines.

The following is a snapshot of our current energy delivery system, which is the starting point for our zero carbon journey. Understanding this system provides context to the challenges, complexities and opportunities in achieving a zero carbon future.

### Participating in external markets: Imports and exports

Imports are the energy that we purchase from other entities to help serve our customer demand. Exports are the energy that we sell to other utilities or system operators. We get power from various sources within the SMUD territory and the rest is imported from elsewhere in California or the Western U.S. Currently, we have a scheduling import limit at a given time of over 1,300 MW with the California Independent System Operator (CAISO) and own and have access to over 500 MW of transmission rights from California-Oregon border on the California-Oregon Transmission Project. We receive additional transmission services from the WAPA, providing access to in-state hydro resources and additional energy from the California-Oregon border.

SMUD is one of several members of the Balancing Authority of Northern California (BANC). As the balancing authority, BANC is responsible for matching of generation to load and coordinating system operations with other balancing authorities. BANC is a partnership between public and government entities and is an alternative platform to other balancing authorities like the CAISO. BANC provides reliable grid operation consistent with standards developed and enforced by the FERC, the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council.

Being part of BANC benefits our customers. For instance, during the summer of 2020, an extreme heat wave encompassed much of the West. This unprecedented heat storm resulted in larger than average energy use across the Western Interconnection, and power generally available to be imported into California was suddenly needed in other states. The result was an energy supply shortage that left many Californians subject to rolling blackouts. Our customers did not experience these outages. Through proactive contracting for energy supply and prudent risk management, SMUD was able to avoid rotating outages for our customers and even helped our neighboring utilities by providing them with some of our energy supply.

## Our commitment to reliable service

Reliability is foundational to our business and a robust reliability framework that has guided our current system architecture. Reliability is the ability of the power system to provide the services our customers expect when they want and need them, even under difficult circumstances. Our Board sets reliability metrics to measure our success under Strategic Direction 4 – Reliability.<sup>34</sup>

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*For more than 70 years, SMUD's been delivering reliable energy to our customers, and we'll continue maintaining all aspects of reliability while transitioning to zero carbon emissions.*

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Reliable operation means we operate the elements of the power system within thermal, voltage and stability limits. Operating within these limits allows our system to continue to operate when an unexpected event occurs, such as a sudden unanticipated loss of a generator or transmission line. In short, if we were not operating reliably, equipment could be damaged, or system instability, uncontrolled separation or cascading failures could result in a system-wide blackout. Reliably operating our power system needs the following three critical components:

### Resource adequacy

Resource adequacy is a condition in which we have acquired adequate resources to satisfy our forecasted energy needs reliably. SMUD uses the same metrics as most other California utilities, which are defined by the California Public Utilities Commission (CPUC) – that is, we maintain enough resource capacity to cover the monthly peak load forecast plus an extra 15% margin. This extra 15% resource capacity is referred to as Planning Reserve Margin (PRM). With the recent system challenges, the CPUC is evaluating possible increases the PRM.

### System adequacy

For system adequacy, we ensure we're capable of serving our load under extreme weather conditions and identify our system's energy import limits. Our load serving capability describes the maximum load that our transmission system can serve reliably. Our import limit is the maximum simultaneous energy that we can import from external entities without exceeding any operating limits. Together, these studies make sure that we have sufficient transmission and distribution infrastructure to reliably deliver energy to our customers under even extreme circumstances.

### Reliability adequacy

Reliability adequacy means that we have adequate grid reliability services to keep the electricity flowing. These services are sometimes referred to as ancillary services and include additional generation capacity and generator capabilities that we need to respond to sudden changes in system conditions and system disturbances, frequency response, generation and load balancing and voltage control.

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<sup>34</sup> <https://www.smud.org/-/media/Documents/Corporate/About-Us/Directives/Strategic-Direction/SD-4.ashx> Last accessed 2-9-2021.

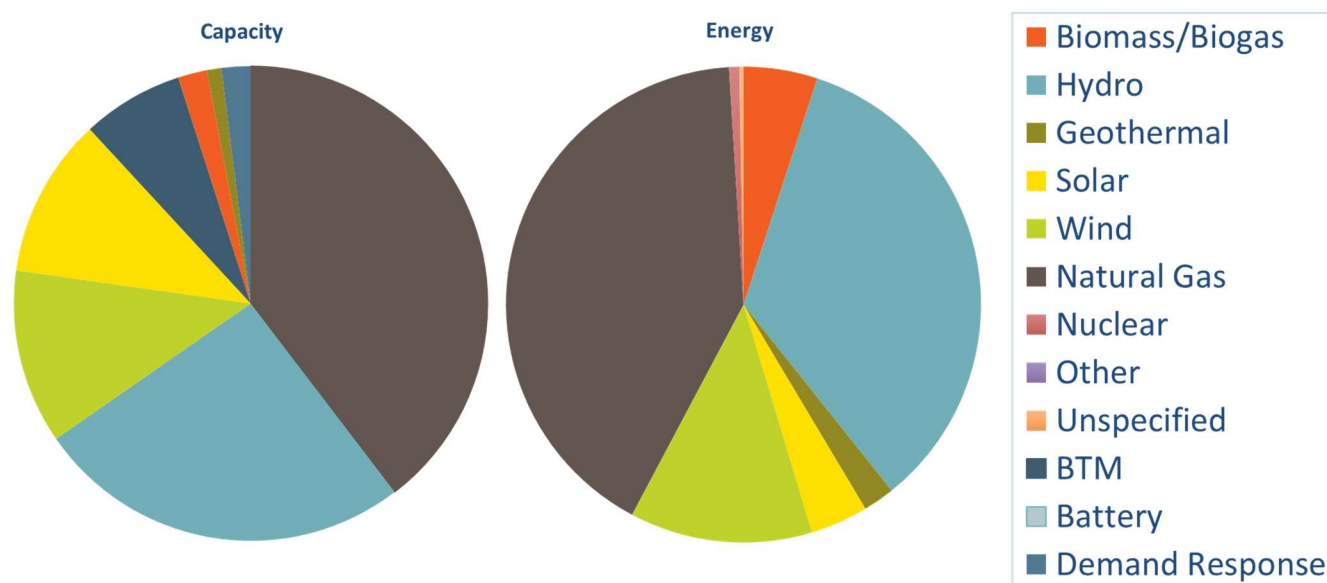
## North America Electric Reliability Corporation (NERC) Reliability Standards

The Energy Policy Act, passed by U.S. Congress in 2005, authorized FERC to oversee the development and enforcement of the Reliability Standards with the purpose of improving reliability of the U.S. power system. In 2006, the NERC was approved by FERC to develop the Reliability Standards. In 2007, FERC approved the first 83 Reliability Standards developed by NERC and began to enforce them. To date, there are approximately 110 mandatory and enforceable NERC Reliability Standards.

## Power supply

SMUD is a steward for our local community and economy. Unlike investor-owned utilities, we aren't driven by profits or investors. We're driven by our desire to offer our customers the most cost-effective energy with the lowest impact on our environment. This is evident in how we operate our thermal power plants and maximize zero emission procurement from hydro and renewables. For a full list of our current operating power plants, see Appendix A: Existing SMUD resources.

**Figure 3. Capacity and energy of resources in the SMUD portfolio (current data)<sup>35</sup>**



### Thermal gas power plants

Today, gas power plants are an important part of the reliable foundation of SMUD's power supply. Our 1,103 MW of thermal generation are vital to maintaining our electric system reliability and to serving our growing system load. Integral to SMUD's long-range resource plan, Cosumnes Power Plant provides customers with a stable, cost-effective power supply. It can generate enough electricity to power more than 450,000 single-family homes per year. It's the

<sup>35</sup> Capacity is the maximum output an electrical generator can produce (i.e., MW), while energy is the amount of electricity a generator produces over a specific period of time (i.e., one hour – MWh).



most efficient combined cycle power plant in California<sup>36</sup> and, on average, 5% more efficient than similar power plants.<sup>37</sup> This also makes it one of the most inexpensive plants to operate, and the cleanest – less fuel burned per unit energy also means less GHGs emitted per unit energy. We maximize the economic operation of this power plant, which means that when solar energy is setting market prices, our Cosumnes Power Plant is operating at a minimum. When other less efficient resources are bidding into the market, we're displacing their emissions. Even with its notable efficiency, nearly two-thirds of our GHGs come from our Cosumnes Power Plant.

Our least economical resources are our peaking power plant units. We run them less often, which results in these units having a much smaller GHG footprint. As the name implies, our peaking units run in the few hours of the year when renewables, hydro, combined cycle and market power cannot meet our expected load without risking reliability. These plants generally run for a few hours at a time. Although these plants are often not running, being operational and grid connected allows them to provide needed ancillary services, resource adequacy and other energy and capacity reserves.<sup>38</sup>

Cogeneration is a part of SMUD's reliable power formula. The Carson, Procter and Campbell cogeneration plants add over 400 MW to our resource portfolio, brought one new manufacturing facility to the region and have reduced operating costs for the three-existing thermal "hosts." Natural gas-fired cogeneration plants produce electricity and steam. The electricity is fed into SMUD's power grid while steam is fed into a factory for manufacturing use, often replacing steam produced by a less-efficient boiler plant at the facility. The low-cost steam helps keep manufacturing expenses low, providing an incentive for firms to keep their plants in Sacramento, and air quality improves relative to non-cogeneration factory operation due to use of advanced air pollution abatement technologies.

### Hydroelectric power

SMUD owns and operates over 688 MW of large and small hydroelectric resources as part of the UARP. The UARP consists of 11 reservoirs and nine powerhouses. In a normal water year, the UARP provides roughly 16% of our electricity – enough to power about 180,000 homes per year. The UARP is able to provide operational flexibility, system reliability and economical power. The value of the UARP also extends beyond the boundaries of SMUD's service territory by helping to maintain the integrity of the Northern California electric transmission system.

We also contract for additional hydro electricity from the U.S. government through a long-term contract with the WAPA for 336 MW of small and large hydro capacity. While this generation is not as flexible as our UARP, it does provide consistent GHG-free electricity.

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<sup>36</sup> Analysis of publicly available data from the CEC-1304 Power Plant Owner Reporting Database.

[https://www2.energy.ca.gov/almanac/electricity\\_data/web\\_qfer/Heat\\_Rates cms.php](https://www2.energy.ca.gov/almanac/electricity_data/web_qfer/Heat_Rates cms.php). Last accessed 23 March 2021.

<sup>37</sup> Nyberg, Michael. 2020. Thermal Efficiency of Natural Gas-Fired Generation in California: 2019 Update. California Energy Commission. Publication Number: CEC-200-2020-03. Average heat rate 7.3, CPP, 6.9.

<sup>38</sup> Capacity is the maximum output an electrical generator can produce (i.e., MW), while energy is the amount of electricity a generator produces over a specific period of time (i.e., MWh). Generators typically do not produce their full capacity 100% of the time.



## Renewable resources

Our existing renewable energy portfolio includes projects we own as well as contracted resources. Currently, we have a good balance between baseload and intermittent renewables. By the end of 2021, we'll have 285 MW of local solar and 160 MW of regional solar in operation. SMUD owns and operates a significant amount of wind generation in Solano County near Rio Vista. Energy from these wind resources is delivered into the CAISO and occasionally wheeled to SMUD. For a detailed list of our renewable portfolio, see Appendix A: Existing SMUD resources.

## Load forecast

Our energy delivery system relies on internally developed forecasts of future electricity sales and demand. We don't rely on external forecasts, such as the CEC's electric demand forecast. Internally, we have a better understanding of our customer base and long-term growth potential. Use of internal forecasts also allows us to maintain consistency across the various planning and operational departments at SMUD.

Our demand model is based on expected (or normal) weather conditions, also known as a 1-in-2 load forecast. It includes economic impacts to the region and changes in customer end uses because of building code and technology changes. The forecast includes system energy, system peak, customer accounts and energy sales for SMUD's service territory. In the long term, our forecasts include affects from our outreach and other customer programs, electrification of buildings and transportation, customer-owned DERs (such as solar and energy storage) and energy efficiency improvements, all of which will change our energy demand.

Table 2 and Table 3 provide the annual energy and peak load forecast used in this Plan.

**Table 2: SMUD's 10-year planning demand forecast (GWh)<sup>39</sup>**

Year	Electric Demand Forecast	Energy Efficiency	Electric Vehicles	Building Electrification	Rooftop Solar	Customer Battery	Managed Electricity Demand <sup>40</sup>
2021	11,123	-94	16	7	-479	0.2	10,573
2022	11,268	-159	34	18	-524	0.4	10,637
2023	11,309	-215	61	33	-568	0.7	10,621
2024	11,410	-274	96	53	-610	1.0	10,676
2025	11,417	-334	158	80	-649	1.4	10,673
2026	11,472	-391	243	118	-688	1.9	10,756
2027	11,538	-451	355	169	-725	2.4	10,888
2028	11,643	-514	500	232	-762	2.6	11,102
2029	11,700	-556	676	315	-795	2.9	11,343
2030	11,747	-608	883	405	-828	3.0	11,602

**Table 3: SMUD's 10-year planning demand forecast of peak load (MW)<sup>41</sup>**

Year	Peak Demand Forecast	Energy Efficiency	Electric Vehicles	Building Electrification	Rooftop Solar	Customer Battery	Managed Peak Demand <sup>42</sup>
2021	3,036	-15	0.9	0.4	-149	-0.7	2,873
2022	3,068	-22	1.9	0.9	-165	-1.4	2,882
2023	3,075	-30	3.6	1.6	-179	-2.3	2,869
2024	3,100	-44	5.8	2.6	-192	-3.4	2,869
2025	3,107	-54	11.0	4.0	-200	-4.5	2,863
2026	3,114	-62	18.0	6.0	-198	-5.9	2,872
2027	3,140	-71	26.5	8.6	-226	-7.6	2,870
2028	3,151	-69	37.4	11.9	-241	-8.4	2,882
2029	3,173	-75	50.6	16.2	-251	-9.1	2,905
2030	3,201	-98	66.0	21.0	-262	-9.3	2,919

<sup>39</sup> The average household in Sacramento uses 9-megawatt hour (MWh) per year. 1,000 MWh = 1 gigawatt hour (GWh).

<sup>40</sup> Managed electricity demand is the total of the electricity demand forecast and contributions from new energy efficiency, EVs, building electrification, rooftop solar and customer battery.

<sup>41</sup> The average peak household load in Sacramento is 4.8 kilowatt (kW). 1,000 kW = 1 megawatt (MW).

<sup>42</sup> Managed peak demand is the total of the peak demand forecast and contributions from new energy efficiency, EVs, building electrification, rooftop solar and customer battery.

Within Sacramento, our electricity demand is expected to grow slowly over the next 10 years. This is due to expected local economic conditions, energy efficiency requirements for new homes, business activity in the region, SMUD's energy efficiency programs and the installation of customer-sited solar power and battery storage. While the region is building new homes, they are much more energy efficient than older homes, plus due to the zero net energy requirement, they are required to have rooftop solar so the net impact to load is smaller than in the past. The expected increase in the market penetration of EVs and an increased focus on building electrification are expected to increase electricity demand and offset the impact of otherwise slow load growth.

Long-term climate change impacts are not directly factored into this long-term forecast, but a climate trend is included to reflect changes in high and low temperatures, which increases energy use in the summer and decreases demand in the winter. Additional or accelerated climate changes could further increase long-term demand for electricity and impact daily and seasonal demand patterns. Extreme heat and storm events, which are projected to become more frequent, add additional uncertainty.

## Distributed energy resources (DER)

DERs are energy solutions where customers implement technology that change how they use energy. DERs can include, among many others, rooftop solar, energy efficiency improvements, demand response and batteries. Energy efficiency, load flexibility and electrification are essential for our long-term mission to use energy more effectively and reduce GHG emissions. The importance of these resources is reflected in our existing programs as well as plans to expand these programs. Our demand-side programs help our customers manage energy use or generate their own energy through incentives, rate design and communication. We're also working to increase the electrification of transportation and buildings in our service territory, which is essential to achieving air quality and GHG reduction objectives in our community.

### Energy storage

In 2016, SMUD adopted a DER strategy that included recommendations on battery storage. As part of that strategy, SMUD evaluated the value of energy storage dispatch under different control schemes as well as expected customer adoption of energy storage to gain a better understanding of the implications of the technology on our system. This strategy also calls for developing behind-the-meter business models and corresponding rate plans that can enhance the shared value of distributed energy storage between customer participants, the rest of the grid and non-participating customers.

In September 2017, the SMUD Board adopted a target of 9 MW of energy storage procurement by December 31, 2020, which we achieved. This target was largely met by residential and commercial energy storage pilots and a utility scale battery procurement coupled with a commercial energy StorageShares program.

We expect solar adoption will continue to grow in our service territory because of continued cost declines and regulatory mandates, such as Title 24, which requires rooftop solar for new buildings permitted under the 2019 Title 24 building standards. We also expect an increasing portion of these solar installations to include battery storage as battery costs decline. Through 2020, our customers have installed a total of over 260 MW of behind-the-meter solar.

Long-term success of energy storage and grid modernization in SMUD's service territory will continue to rely on external factors such as battery cost reduction and technology innovation from 3<sup>rd</sup> party businesses, but SMUD also recognizes that to maximize the potential of energy storage, proactive engagement from the utility, in advance of financial viability, is needed. We also need more information and field testing to evaluate the impact of extreme heat conditions on battery performance in our region. With SMUD being a member of BANC, we have a greater level of independence with grid operations, which uniquely positions SMUD to develop programs, incentives and partnerships in our service territory that will enable access to a broader set of benefits. Access to these system level economic or reliability services will enable further 3<sup>rd</sup> party innovation, allow SMUD to collaborate with innovators to align grid needs with technology solutions and help us provide products that create value for our customers.<sup>43</sup>

### **EVs and load flexibility**

EVs will likely be one of the most flexible resources of our electrification efforts. In addition to EVs, there is also a proliferation of smaller devices being adopted today, including batteries, smart thermostats, water heaters and home management systems. The number and types of these devices is growing independently of utility support and represents a significant load flexibility opportunity for SMUD to partner with customers to improve overall system utilization and minimize costs associated with new infrastructure.

Through passive rate instruments like SMUD's nighttime plug-in EV discount, customers have been shown to be effective at changing seasonal system-wide load shapes. These load shape modifications could also be achieved with actively managed charging technologies. However, these technologies have only been piloted and demonstrated at small scale to date, largely due to relatively low EV adoption and a lack of standardized hardware and software interfaces for integrating between grid management systems and the vehicle charger. In an attempt to bring some standardization to the market, aggregator business models are emerging to pool different vehicles and chargers for utility access, entering custom integration agreements with many 3<sup>rd</sup> party systems working towards a single interface for utility integration. The aggregation model may be inefficient for the long-term, but is a near-term necessity as standardized programs, business models and communications pathways are slowly being developed and advocated for by utilities.

### **Demand response**

Our system is developed to operate under the most stringent and difficult operating conditions. In practice, this means we strive to meet our customers' needs during all hours of the year. There are times when paying or otherwise signaling our customers to reduce usage is less expensive than turning on an additional power plant. Demand response initiatives are one kind of load flexibility program at SMUD and are primarily used for contributing toward our capacity reserves and reserve margin needs.

**Peak Corps Program** is a residential air conditioning load management program that provides a summertime resource for emergency situations if the need arises. Currently,

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<sup>43</sup> For a more detailed discussion of SMUD's energy storage goals, please see [https://www.energy.ca.gov/sites/default/files/2019-05/AB\\_2514\\_Oct\\_1\\_2017\\_Report\\_UPDATED\\_91517.pdf](https://www.energy.ca.gov/sites/default/files/2019-05/AB_2514_Oct_1_2017_Report_UPDATED_91517.pdf). Last accessed: 11 December 2020.

the program has the capacity to reduce demand by 59 MW. The technology supporting this program is reaching the end of its technical life and the program is expected to end before 2030. A new NextGeneration Air Conditioning Load Management program is being planned to replace Peak Corp with updated technology for a launch as early as 2023.

**PowerDirect Program** is an automated demand response program for commercial customers available for use between June and September from 2 to 6 p.m. It's an operational resource for reliability and economic purposes. The program is planned to grow over the next few years reaching 30 MW by 2027 and is expected to maintain that level going forward.

**Individual commercial customer agreements** are comprised of individual curtailment agreements with some of our largest industrial customers that allow us to curtail load for reliability or economic purposes with the potential for up to 6.5 MW within 10 minutes' notice. SMUD can call on these customers throughout the year.

Our 2015 Demand Response Potential Study looked out over a 10-year period and estimated the capacity expected to be available during the peak hour of system demand as ranging from 189 MW to 471 MW across four scenarios considered, with the base scenario predicting 368 MW. This equates to 11.3% of SMUD's peak load. The load reduction potential would come from three sources: programs, dispatchable pricing and non-dispatchable pricing. Variation in the peak capacity across the various scenarios can be attributed to differences in pricing enrollment policy, technology cost forecasts and the degree of marketing and incentive levels. This study was key contributor to our load flexibility strategy.

**Table 4. Dispatchable load flexibility programs 2021-2030 (MW)**

Year	Peak Corps	PowerDirect	Curtailment Agreements	New Planned <sup>44</sup>	Total
2021	58	15.2	6.5	0.0	79.7
2022	57	17.7	6.5	1.0	82.2
2023	56	20.2	6.5	11.1	93.8
2024	55	22.7	6.5	26.0	110.2
2025	54	25.5	6.5	41.7	127.4
2026	53	27.7	6.5	58.1	145.3
2027	52	30	6.5	75.9	164.4
2028	51	30	6.5	94.5	182.0
2029	50	30	6.5	115.5	202.0
2030	0	30	6.5	128.2	164.7

<sup>44</sup> In addition to expanding on these existing programs, our 2030 Zero Carbon Plan will also focus on new programs and strategies for flexible loads.

Over the next few years, we're planning to launch new load flexibility initiatives, which have been informed by the results of SMUD's Demand Response Potential Study. These new programs are planned to be flexible and available to respond with very short notice. This will be helpful when we're trying to balance supply and load due to increasing amounts of intermittent renewable generation on the system.

### **Enhanced electricity rates**

SMUD encourages energy efficiency and conservation through time and temperature dependent rate structures. These rates provide signals to our customers when energy costs are at their highest, and generally coming from the most polluting sources. These rates include our residential and commercial TOD and temperature dependent rates.

The TOD rate structure encourages customers to conserve energy by rewarding them for reducing their usage during peak hours. To encourage residential EV adoption, our TOD rate offers a plug-in EV discount of \$0.0150/kWh on all electricity used between the hours of midnight and 6 a.m.

We also have industrial customers on our Temperature Dependent Rate, equivalent to 15 MW of capacity. During the summer when outdoor air temperatures exceed 100°F for a certain period, we can notify customers and provide them the option of curtailment or continued service at a higher cost.

## 2030 Zero Carbon Plan approach and overview

SMUD's carbon reduction journey has entered a critical juncture as we look toward to the next decade and plan to achieve our aggressive goal of eliminating GHG emissions from our power supply by 2030. The remainder of this Plan provides the foundation for our next steps as we address the challenge laid before us, to:

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*Reduce our stationary source carbon emissions to zero by 2030 while continuing to offer reliable electricity at affordable rates and maintaining our commitments to our community.*

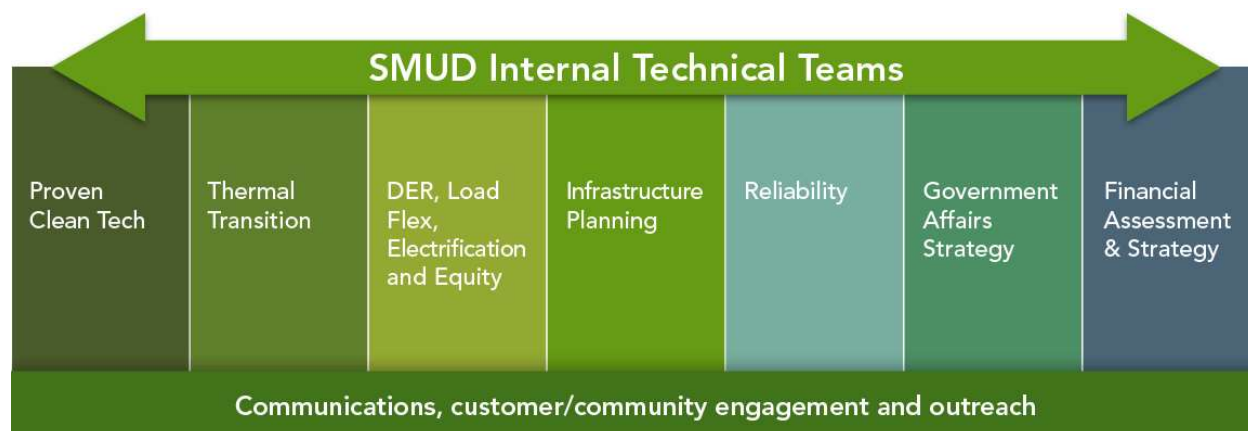
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This Plan was developed in consultation with our community, experts in the utility industry and energy field and SMUD staff subject matter experts. To inform our Plan, we consulted with the engineering firms Black & Veatch, Energy + Environmental Economics (E3) and IEC Corporation. These firms conducted detailed analysis and studies on the status of proven clean technologies and the expected performance and costs of new and emerging clean technologies.

### SMUD technical teams

Beginning in October 2020, eight technical teams of nearly 100 SMUD employees mobilized to investigate various methods to completely decarbonize our electricity supply. Developing a plan of this scope and magnitude is generally a process that is undertaken over years, not months. Our teams were formed quickly and worked collaboratively and creatively to develop a robust, fact-based plan to achieve zero carbon emissions by 2030. Each team had a specific focus, though constant coordination was required across all teams to develop a comprehensive and cohesive plan. Figure 4, below, shows the eight technical teams that contributed to developing the 2030 Zero Carbon Plan.

**Figure 4. Technical teams contributing to 2030 Zero Carbon Plan development**



## Public consultation process

A key theme in the development of our 2030 Zero Carbon Plan is collaboration and public outreach. We know we cannot achieve ambitious climate goals alone and need to partner with our entire community to make sure we deliver solutions that are attractive, affordable and beneficial to our entire region, leaving no community behind.

While developing the 2030 Zero Carbon Plan, we engaged in extensive outreach to seek input from our customers, communities and other stakeholders. Our outreach process included four principal paths:

- **Three virtual presentations** to our customers and community organizations in December 2020.
- **An online survey** to collect feedback and views from our customers and community organizations on the development of the 2030 Zero Carbon Plan and their sentiments about their own climate investment plans and willingness to partner with SMUD.
- **Seven virtual stakeholder workshops** with selected groups and organizations. These workshops included participants from community organizations and nonprofits, environmental groups, the solar + storage industry and local business leaders.
- **Three industry expert panel discussions** to help our Board, SMUD staff and the public learn more about the latest technologies and ideas for decarbonizing our power supply.
- **Seven Board meetings** where members of the public had opportunities to learn about the progress of the 2030 Zero Carbon Plan and provide comments. All of SMUD's Board and Board Committee meetings are public and our customers and other members of the public will have ongoing opportunities to provide public comment on our 2030 Zero Carbon Plan and other topics.

The vast majority of people who attended our meetings expressed strong support for our 2030 Clean Energy Vision. While some expressed concerns over potential cost increases and emphasized the need for all communities and customers to be part of the solutions (including under-represented or under-resourced communities), most were enthusiastic and expressed interest in partnering with SMUD to support our goals.

In parallel with the meetings mentioned above, we developed a webpage, [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon), where interested participants could register for the meetings, learn more about our 2030 Zero Carbon Vision, sign up for future notifications, get answers to frequently asked questions and give SMUD input for the 2030 Zero Carbon Plan. The meeting recordings are posted on this webpage.



**Figure 7. Community benefits of a zero carbon future**



The interest from our customers and our communities has been outstanding. During our accelerated timeline of only about 3 months to develop the Plan, more than 500 participants provided their inputs and comments representing customers, businesses and community organizations in the region as well as national organizations. We have also received many comments and suggestions through our zero carbon webpage and our dedicated email [ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org).

### **Customer and community presentations**








In December 2020, we held two virtual meetings for residential customers and one meeting for community organizations. The objective was to introduce the 2030 Zero Carbon Plan and collect feedback. We sent email invitations to the meeting to a representative cross-section of our residential customers. We also invited every not-for-profit organization we are connected to in the Sacramento region, as well as subscribers to our listservs, and we announced the meetings via social media. This outreach resulted in 415 participants in the two residential customer meetings and 82 participants in the community meeting.

### **Online survey results and insights**

Customers who participated in our customer and community meetings in December 2020 were also invited to provide their views and input through an online survey. A full summary of the survey results is posted on [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon). Table 5 provides a high-level summary of the survey results.

During the sessions, customers asked many questions about our energy resource mix, our investment plans and what the 2030 Zero Carbon Plan means for our communities. These questions, many of which were answered directly during the customer and community meetings, have been converted into a frequently asked questions (or FAQ) section that's available at [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon).

**Table 5: Summary of online survey results**

	The vast majority of residential and community group attendees feel that it's extremely or very important to improve air quality in the Sacramento area.
	The majority of residential and community group attendees indicated that they "loved" SMUD's Zero Carbon goal.
	The top 3 ways attendees felt SMUD should support the community were to provide: <ol style="list-style-type: none"> <li>1) Affordable electricity options</li> <li>2) Reliable energy</li> <li>3) Achieve zero carbon in a way that benefits all communities.</li> </ol>
	60% of residential and 77% of community group attendees indicated that they are very willing to partner with SMUD by personally taking action to reduce Sacramento GHG.
	39% of residential customer attendees say they are very likely to purchase smart home technologies in the next 12 months. Almost one-fourth are very likely to purchase/lease EVs or rooftop solar, while slightly fewer (17%) are very likely to purchase/lease a battery.
	When asked how much they would be pay voluntarily, almost half of residential customer attendees claimed they are <b>willing to pay up to \$10 more per month</b> to support the 2030 Zero Carbon plan. However, almost one-fourth were not willing to pay any more.
	Almost 6 of 10 residential customer attendees claimed they are very likely to respond to tips from SMUD to reduce their GHG emissions. 43% said they are very likely to participate in a Demand Response program and 30% to replace their gas appliances with electric.

### Stakeholder meetings

We organized meetings to solicit input from a wide range of key stakeholders. Each group met twice – once at the beginning of our 2030 Zero Carbon Plan development process in mid-December 2020 and once at the end of February 2021 to learn about the results of our studies and key recommendations we intended to include in the Plan. Meetings were held targeting four stakeholder groups: solar + storage industry, environmental organizations, community organizations and business leaders.

Each meeting was scheduled for 90-120 minutes and included a brief presentation from SMUD followed by a discussion session with the participating stakeholder groups with the objective for SMUD to learn as much as possible about these groups' views on our 2030 Zero Carbon Plan. The meetings were facilitated by the Smart Electric Power Alliance (SEPA), a not-for profit organization focused on helping utilities and other energy companies decarbonize their energy supply chain and work with their communities and stakeholders to achieve those goals. As a result of these meetings, the following key themes emerged:

**Support.** Across all sessions and groups, strong support was expressed for SMUD's goals. All groups indicated interest in partnering with SMUD, ranging from offering to communicate our 2030 Clean Energy Vision to their respective communities to expressing interest in new customer incentives. Several stakeholders also emphasized the need to partner with technology

and solutions providers to find innovative solutions. Some stakeholders also expressed support for specific technologies, in particular support for rooftop solar, batteries and EVs.

**Costs.** Concerns over the costs for eliminating carbon emissions were raised by multiple stakeholders, particularly community organizations and business leaders. Community organizations also highlighted the importance of all communities getting access to clean energy options and that no communities are left behind in the process.

**Outreach and education.** All stakeholder groups expressed the need for education and outreach about how our 2030 Zero Carbon Plan will help address climate change. Several community organizations also offered to provide outreach on these efforts in their communities.

**Repowering gas plants.** Several, but not all groups, expressed support for repowering or repurposing our gas plants to carbon free alternatives to avoid costs associated with prematurely retiring our gas-fired plants, which would result in stranded costs.

Stakeholders also provided general appreciation for the opportunity to be involved in the development of the 2030 Zero Carbon Plan and provided support for the preliminary draft that was presented at the second set of meetings in February 2021. While supportive, several stakeholder organizations and groups reiterated their continued emphasis on key issues, such as community involvement, the value of electrification, cost concerns and their willingness to partner with SMUD to help support our zero carbon goals.

### Industry expert panels

With the support of SEPA, we convened leading experts from around the nation to help inform the SMUD Board and our staff of the latest technology developments, research, products and services that should be considered when aiming to be a zero carbon utility by 2030. We hosted a total of three industry expert panels over the course of three Board meetings that included 11 experts. These meetings were open to the public and some members of the public also provided comments during the process. Each panel meeting had a specific theme.

- **January 12, 2021: Vision, solutions and technology for a carbon free future.** In this panel, experts from Vibrant Clean Energy, Rocky Mountain Institute (RMI), Electric Power Research Institute and National Renewable Energy Lab provided an overview of the latest developments and research, including the future role of customer-located generation and storage and the potential of a closely coordinated and operated electric distribution grid to reduce the cost of renewable integration.
- **January 26, 2021: DERs and the edge of the grid.** Experts from Lawrence Berkeley National Lab, Sunrun, Olivine and Schneider Electric provided their views on the role of DERs in a zero carbon future. Panelists highlighted the potential for virtual power plants (VPPs) to supplement grid resources and reduce costs. The panel also emphasized the importance when power is used, suggesting that initiatives and technologies capable of changing when energy is used can contribute to a more stable and reliable grid. Panelists suggested that the aim is not perfection, but to test and improve technology to find solutions that work best for communities.
- **February 9, 2021: Grid scale solutions for a carbon free SMUD.** Experts from General Electric, Ameresco and Green Hydrogen Coalition focused on large-scale zero carbon supply options that could be available by 2030. The experts highlighted that

today, there are already many options for energy and alternative fuels. Hydrogen was identified as a fuel with the potential to provide long-duration storage options and support reliability in an otherwise mostly renewable energy powered grid, noting that we're still some time away from having a reliable supply of affordable hydrogen or other biofuels in volumes that are sufficient to fully replace SMUD's natural gas use.

### SMUD Board and committee meetings

SMUD staff has provided updates to the Board and its committees at virtual meetings from December 2020 through March 2021. At these meetings, we presented the status of work performed and next steps. We also received guidance from the Board on their desired direction of our work as well as inputs from the public through public comments during the meetings. The views expressed in this forum have helped to shape the scope and the analysis of our work on this 2030 Zero Carbon Plan.

### Innovation Leadership Team (ILT)

SMUD solicited innovative ideas from the public and our employees to help develop this Plan. Our ILT reviewed and prioritized ideas to into the Plan. The most promising opportunities were studied further. Information and analysis from our contractors and vendors, along with staff expertise were used to prioritize options for inclusion in the 2030 Zero Carbon Plan. Table 6 highlights key factors used to prioritize ideas. For a list of non-confidential submissions from the public, see Appendix C:

**Table 6. Key factors for considering innovations**

Category	Criteria
Benefits	Helps meet 2030 goal
	Fills portfolio need
	Flexible/Adaptable to changes
	Innovation prospects
	Opportunities for collaboration
Costs	Projected costs (capital, operations & maintenance, procurement)
	Certainty of cost projection
Risks	Public safety
	Siting, permitting, and environmental impact
	Political/regulatory
	Technology maturity, commercialization, scalability for deployment
	Dependency on other projects and investment climate

## Carbon accounting

There are many valid methods for accounting for GHG emissions, however, they don't all measure the same thing, which makes comparison difficult. In framing our 2030 Zero Carbon Plan, it's important to recognize that a 100% renewable generation procurement target does not guarantee corresponding GHG emissions reductions.<sup>45</sup> At its most basic level, carbon accounting is challenging to reach consensus on the application of valid approaches. Complicating this is the fact that once electricity enters the grid, it's impossible to distinguish the source, making it difficult to estimate our emissions footprint if one generation source is indistinguishable from the next. Generally, accounting methods can be broadly grouped in terms of timescales, such as annual and hourly accounting. For this Plan, we used an hourly accounting framework.

Annual accounting methods are the basis for many GHG accounting frameworks and disclosure regulations in California.<sup>46</sup> In this approach, we count as ours all zero-emission energy we buy or generate, generally at a higher price or cost, and we consider the energy we sell to be from our GHG-emitting sources. This methodology is widely accepted because it appropriately attributes the extra cost of zero emission resources to the purchaser. It also acknowledges that power bought in the open market is indistinguishable from other electrons, therefore market power purchases are treated as carbon emitting resources unless the buyer can show otherwise.

The drawback of annual accounting is that, as we're seeing today, the value of renewable energy can exceed the market value. This can cause market inefficiencies and negative energy prices during high solar producing periods. One method to guarantee the most emissions reductions from renewable energy is to match power consumption with renewable generation on an hourly basis.<sup>47</sup> In practice, this means whenever we draw power from the grid, we need to be simultaneously injecting or buying an equal amount of renewable power. As more information becomes available and increasingly accurate, consumers can shift flexible consumption to portions of the day where grid power is cleanest, further reducing emissions. With a 100% renewable energy supply, customers can reduce the carbon footprint of the entire grid in addition to their own footprint.<sup>48</sup> A summary on these methods, as used by SMUD, is in Table 7.

For this Plan, we used an hourly accounting methodology. This accounting framework is more stringent than most mainstream utility and regulatory programs and, more importantly, it's also most closely aligned with our Board's direction and SMUD's 2030 Clean Energy Vision.

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<sup>45</sup> de Chalendar, Jacques and Sally M. Benson. *Why 100% Renewable Energy Is Not Enough*. June 2019. Joule 3, 1389-1393. Available Online: <https://www.cell.com/action/showPdf?pii=S2542-4351%2819%2930214-4>. Last accessed: 25 January 2021.

<sup>46</sup> Our 2040 Clean Energy Plan also layered on an additional accounting framework to measure programmatic successes for our energy efficiency and electrification strategy, and identified GHG reduction from electrification to include in our net-zero accounting.

<sup>47</sup> de Chalendar, Jacques and Sally M. Benson. *Why 100% Renewable Energy Is Not Enough*. June 2019. Joule 3, 1389-1393. Available Online: <https://www.cell.com/action/showPdf?pii=S2542-4351%2819%2930214-4>. Last accessed: 25 January 2021.

<sup>48</sup> Ibid.

**Table 7. Accounting methodology**

	Annual Accounting	Hourly Accounting
SMUD Thermal Sales – Credit for exports/sales	Emission Intensity (EI): 0.39t/MWh or linked to the average EI of operating thermals	
Undelivered Renewable Energy (Sold into the CAISO)	Energy displaces unspecified imports (on an energy basis) one-for-one, in terms of annual accounting. Renewable sales in excess of this value provide no additional GHG value.	Energy displaces unspecified imports (on an energy basis) one-for-one, in terms of hourly accounting. Renewable sales in excess of this value provide no additional GHG value.
Unspecified Imports	EI: 0.428t/MWh	EI: 0.428t/MWh
	Only applied to import in excess of renewables in the CAISO (under annual accounting)	Only applied to import in excess of renewables in the CAISO (under hourly accounting)
Specified purchases and imports	EI of the known resource. If unavailable, assume all are gas resources emitting 0.428 t/MWh. Renewable procurement should not be able to displace specified contracts.	

## System modeling

The industry standard practice for planning studies is to develop and analyze several options that are capable of offering reliable electric service, subject to our policy, environmental, physical and economic limits. We conduct these studies using a series of computer simulations that model building new resources, operate the system over several years and test the system's ability to meet our needs in the most difficult circumstances. Although these models are powerful tools, they're time-consuming data-intensive processes. To assist our efforts, we hired E3 to support the modeling for this Plan.

This Plan relies upon two resource planning models developed by E3 and tailored towards analysis of electric systems at high penetrations of renewable generation to develop and analyze a range of scenarios to explore potential options for carbon reductions in the SMUD system portfolio:

- ***E3's Renewable Energy Capacity (RECAP) model:*** A loss-of-load-probability model that provides a detailed and statistically robust perspective on electric systems that rely on a combination of conventional, renewable, storage and demand-side resources.
- ***E3's Renewable Energy Solutions (RESOLVE) model:*** A capacity expansion model that uses optimization techniques to identify a least-cost portfolio of resource investments to meet future reliability and clean energy objectives.

These two tools complement one another in their application, together providing a strong foundation to analyze and understand implications of long-term transitions towards low carbon and carbon free portfolios. These models are used together: first, the Plan uses RECAP to characterize potential contributions of different technologies toward system resource adequacy needs; this, in turn, serves as an input to RESOLVE, to ensure that the least-cost portfolio outcome meets reliability goals.

The following sections will address key questions and considerations for achieving zero carbon by 2030. Our goal in this report is to provide data and information to answer the following questions:

- What role can our thermal assets play in this Plan?
- How close can we come to meeting our goals using currently available proven clean technologies?
- What new and emerging technologies show promise for filling the remaining gap to zero carbon?
- What are possible scenarios for achieving these goals? How will these scenario results later inform our strategy discussion as elements of our plan become more concrete?



## The 2030 Zero Carbon Plan

Achieving our goals requires eliminating fossil fuel GHG emissions, either by displacing natural gas use from our power plants or capturing our emissions before they reach the atmosphere. Informed by expert consultations, system modeling and supplemental studies, we've developed four strategies to guide our initial decisions on our journey toward eliminating carbon emissions from our power supply. Each group is comprised of options and decision points. Although there is not a single path to achieve our objective, this Plan has helped identify strategies that will help us along the way. We'll continually revisit our strategies and planned path along the way and course correct as needed. In the end, we'll have traveled our unique pathway to reach the end of our 2030 zero carbon journey.

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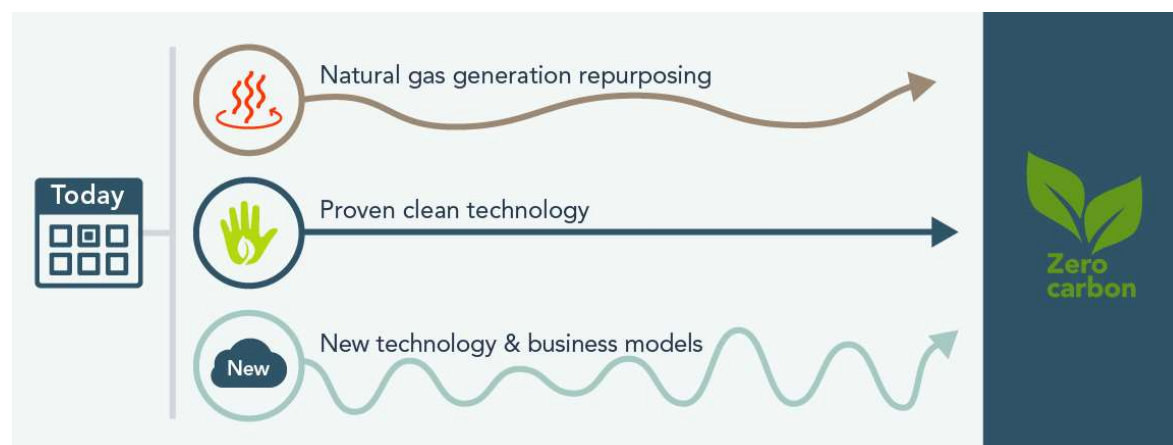
*SMUD's 2030 Zero Carbon Plan is a flexible pathway to eliminating carbon emissions from our power supply by 2030.*

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### Developing our flexible pathway to zero carbon

Each strategy addresses distinct challenges. The decisions we make will take us one step closer to our goal but may also require that we reassess our next decision. Our flexible pathway to zero carbon is based on what we know today, and our pathway will evolve as new technologies are developed and we learn from our experiences. Some strategies, like proven clean technologies, are more straightforward, and we have a clear understanding of the risks and the costs. Other strategies are not as well understood and are more complex. As technology and business models evolve, we may reevaluate previous decisions and reconsider our decarbonization plan to align with new information. These strategies are interdependent, but each element of our plan will require a unique strategy complete with different resources, milestones and risks. In our flexible pathway, we'll need all three strategies to contribute, and understanding how each will ultimately contribute by 2030 will be refined over time.

**Figure 5. Illustrative flexible plan**





**Natural gas generation repurposing:** The future of our natural gas-fired thermal power plants is a critical component of our energy delivery system. These power plants are economic and reliable sources of both energy and non-energy services to the system. This strategy challenges us to consider what role these units could play in our zero carbon future. Elements considered include retirement or retooling of thermals, using alternative fuels such as renewable hydrogen, RNG, or renewable diesel or developing new technologies, such as carbon capture and long-duration storage.

**Proven clean technologies:** These are mature zero emission technologies available in the market today. Mature technologies, such as solar and wind, are economical resources with a known track record for performance. Coupled with storage and DERs (rooftop solar and customer-owned batteries), proven clean technologies are expected to form the foundation for our clean energy goals. This strategy also provides the replacement attributes needed to support our natural gas generation repurposing strategy. As part of this strategy, we considered technologies such as wind, solar, lithium-ion batteries, hydroelectric power, biomass and geothermal.

**New technology and business models:** There are exciting technology advancements that are currently evolving in the electricity market. Building on the alternative fuels studied as part of our natural gas generation repurposing strategy, we're also exploring how our customer relationship can evolve as we work to integrate additional distributed energy and demand response resources into our system. As we achieve greater success in this strategy, our strategies above would be less necessary, possibly allowing us to achieve our goals at lower costs.

**Financial impacts and options:** We're committed to achieving the 2030 Zero Carbon Plan while keeping rates affordable. While the plan represents significant new investments, there are several opportunities to manage the impact to customer bills. This strategy depends on regional, national and international partnerships to share the costs of common goals and fund the development and acceleration of new technologies. We'll continue to expand new revenue sources, such as Low Carbon Fuel Standard (LCFS) credits, U.S. EPA electric Renewable Identification Number and carbon credits. This strategy also focuses on leveraging use of our low-cost of capital, mechanisms such as green bonds and commodity prepay that may lower costs and improving efficiency in delivery of our core services. As technologies progress, we'll regularly review the financial impact and manage our finances to keep rate increases low and stable.

In the following sections, we'll explore the pathway options of our road map to decarbonization and discuss plausible implementation scenarios that will allow us to realize our 2030 Clean Energy Vision. Our previous studies have shown that renewables are an economical resource; however, all of our studies to date show that renewables, even with today's battery technologies, cannot get us to zero carbon reliably and affordably. To keep our commitments to our customers, we'll need to embrace the leading edge of technology, innovation, research and development, and deploy groundbreaking and sometimes counter-intuitive solutions.

## Natural gas generation repurposing strategy

### Natural gas generation repurposing

- Reimagine thermal fleet as peaking plants.
- Study the retirement of McClellan in 2024.
- Study the retirement Campbell in 2025.
- Retool Carson and Procter & Gamble from combined cycle operations to simple cycle peaking units.
- Eliminate carbon emissions and minimize operating hours.
- Research and scale alternatives to natural gas.

Our Plan starts with our thermal power plants, which currently depend on natural gas for generation. This section takes a detailed look at our thermal fleet and our commitments in this area. This includes our electricity delivery system, which for decades has been built and maintained around the continued operation of our natural gas power plants. In this analysis, we look to these resources not as an impediment to our 2030 goals, but as an opportunity. These thermal power plants represent existing assets that can be leveraged to achieve our goals at lower cost and greater reliability, while considering neighboring communities, particularly under-resourced areas.

To study how our existing thermal power plants can play a role in our carbon reduction journey, we scanned the industry for technologies and strategies that could decarbonize SMUD's natural gas-fired thermal fleet. For this analysis, we assessed the following topics.

- Technology options for their maturity and future potential.
- The cost and availability of alternative fuel sources.
- Location of thermal power plants to under-resourced communities.

Our goal of this analysis was to find tools that can be used to:

- Protect grid reliability during the transition to zero carbon.
- Provide a baseline reference point for comparison of replacement options.
- Minimize the adverse impacts on under-resourced and sensitive communities.

As we studied this strategy, we considered our under-resourced communities, health impacts and reliability of our system. We looked at three broad options for our thermal plants, including retirement, retooling or a hybrid approach.

### Thermal power plants and our communities

When considering the future of our natural gas power plants, we must understand how these plants operate and acknowledge that these resources provide more than energy to our system. These plants are also fixtures in our communities, for better or worse, and we must consider and include our neighbors in these decisions, to fully weigh the impacts of retiring or changing the operations of these power plants.

SMUD owns and operates five power plants within Sacramento. Our power plants are fueled by using natural gas and two locations are also supplemented by RNG. Excluding McClellan, our power plants are designed as either combined cycled or cogeneration power plants. These systems allow each power plant to capture the waste heat from the combustion turbine in energy efficient ways. In general, our thermal power plants operate like this:

- A gas turbine burns fuel and air is compressed and mixed with gas that is heated to a very high temperature. The hot gas mixture exhausts through the gas turbine blades, making them spin, rotating a generator and producing electricity.
- In combined cycle and cogeneration plants, a heat recovery system captures the gas turbine exhaust waste heat that would otherwise escape through the exhaust stack and instead creates steam.
  - In a combined cycle power plant, the steam is delivered to a steam turbine that makes additional electricity. As shown in the table below, a steam turbine can generate about 50% more electricity from the turbine's captured waste heat.
  - In a cogeneration power plant, the steam is delivered to a neighboring facility for use in their production. Our steam deliveries are regulated via formal "Steam Sales Agreements" with our steam customers.

Historically, we've operated our power plants as baseload plants, designed to be online for long periods of time, operating at a consistent level, with little downtime for annual maintenance and repairs. As larger amounts of low-cost solar power have become available, we now find ourselves "cycling" the power plants from high load to minimum load and in some cases even shutting units down for extended periods. Although combine cycle power plants are very efficient when running, the internal mechanics and thermodynamics of the system restrict how quickly and how often the plant can start up and shut down. In many cases, if we expect to need the plant the next day, it's more efficient and economical to keep it running. These engineering and economic factors drive operations at the Cosumnes and Campbell power plants.

We've also operated cogeneration power plants that use the exhaust heat to produce steam for industrial customers. In particular, our steam host obligations are one of many factors we must consider as we operate the Procter & Gamble and Carson power plants. Similar to combined cycle plants, these steam turbines take time to warm up and cannot be shut down quickly. We must also consider our obligations to our steam customers when considering daily operations.

Table 8 provides an overview or the current configurations of our thermal power plants.

**Table 8. SMUD thermal power plant overview today**

Power Plant	Generator Type	Unit	Capacity Rating (MW)	Fuel Source
Sacramento Power Authority (SPA) at Campbell Soup	Combustion Turbine	1	116	Natural Gas
	Steam Turbine	2	62	Waste Heat
McClellan Gas Turbine	Combustion Turbine	1	72	Natural Gas
Central Valley Financing Authority (CVFA) at Carson Ice	Combustion Turbine	1	48	Natural Gas and Biogas
	Steam Turbine	2	20.6	Waste Heat
	Combustion Turbine	3	42.5	Natural Gas and Biogas
Sacramento Cogeneration Authority (SCA) at Procter & Gamble	Combustion Turbine	1	52.4	Natural Gas
	Steam Turbine	2	42.5	Waste Heat
	Combustion Turbine	3	48.3	Natural Gas
	Simple Cycle Peaking	4	50	Natural Gas
SMUD Financing Authority at the Cosumnes Power Plant (CPP)	Steam Turbine	1	207	Waste Heat
	Combustion Turbine	2	207	Natural Gas and Biogas
	Combustion Turbine	3	207	Natural Gas and Biogas

### Reliability considerations

As noted earlier, reliability services are needed to maintain a reliable grid. Some of these services can be provided by proven clean technologies, like batteries or hydro, but during expected compounded weather events such as multiple days of adverse conditions like low-wind, cloudy days, heavy fog, heavy smoke and long periods of drought, our operational experience has shown that renewables struggle to meet our immediate needs consistently and reliably. As part of developing this Plan and during the next steps to implement it, we'll keep reliability at the forefront of our decision-making. The following operational characteristics are currently provided by our thermals and must also be provided in our 2030 Zero Carbon Plan.

- **Fast and flexible dispatchability:** Dispatched by Automatic Generation Control every 4-seconds over a wide output range.
- **Sustained operating reserves:** Operating reserves are required to be fully deployable in 10 minutes and can sustain for 60 minutes.
- **Quick frequency response following a disturbance:** Respond to system frequency deviation within 10 seconds and sustained for at least a few minutes.
- **Dynamic voltage control:** Dynamically adjust reactive power<sup>49</sup> based on system voltage swings.

<sup>49</sup> Reactive power isn't used for mechanical work and is relationship between the phases of AC current and voltage. The more out-of-phase current and voltage are the less efficiently power is being transmitted.

- **Inertia:** Physical resistance to frequency changes in the first few seconds following a system disturbance before generator frequency response kicks in. This resistance to change (typically from large rotating generators) gives automated control devices needed time to respond.
- **System oscillation damping:** Stabilize generator oscillation quickly within 10- to 20-seconds by providing additional damping through generator control.
- **Black-start capability:** Capability of a generator to start up without support from external power sources, which is needed in the event of a system blackout to energize other equipment and restore the system.

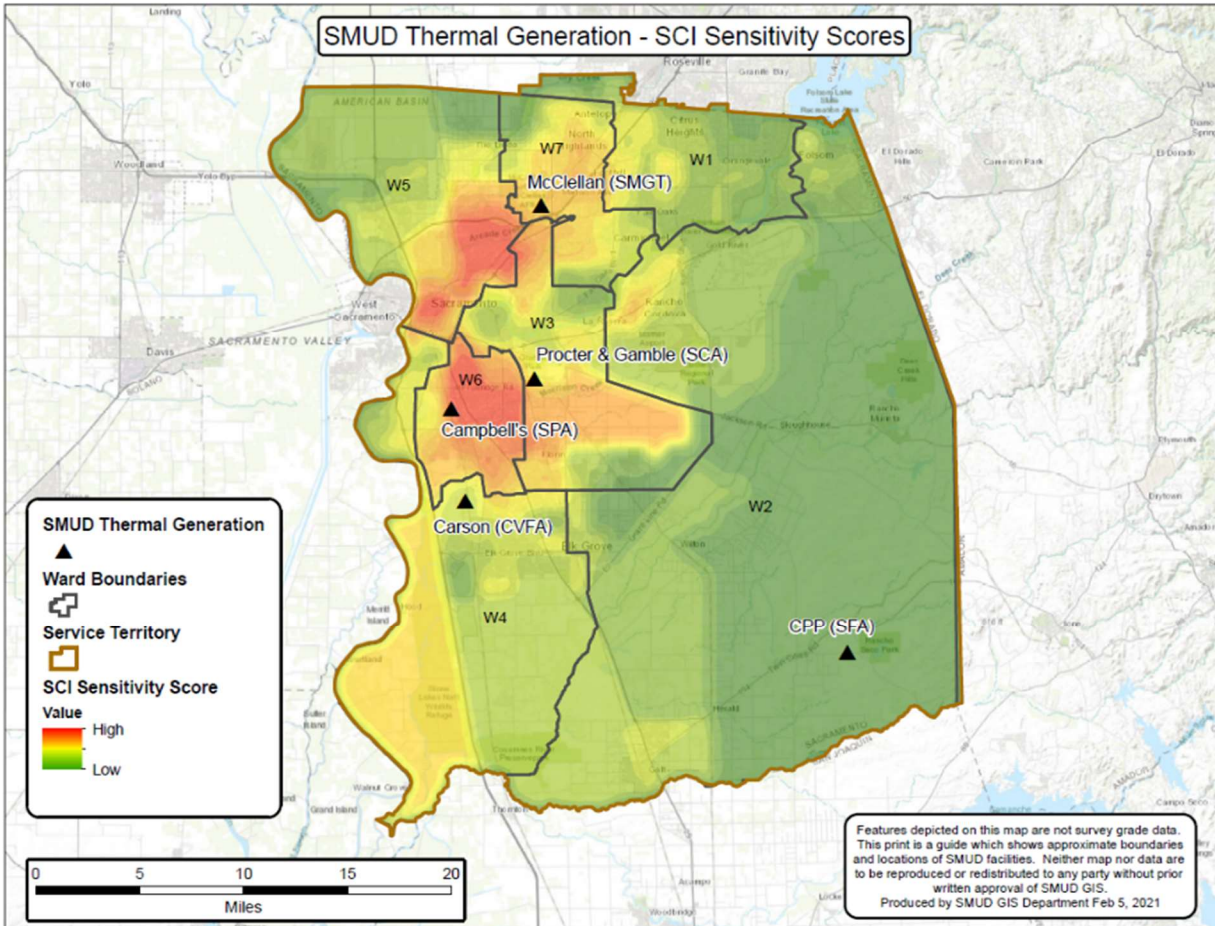
Thermal power plants have been integrated into our grid for decades and our electrical system has been built around them. As we change how these plants operate, we need to analyze all aspects of our system, including our ability to import power. While this Plan provides a high-level look at import and load serving capabilities, additional studies are required to examine each resource option and their capabilities and shortfalls. In terms of reliability, our preliminary analysis suggest that retirement of a power plant may be possible if initial steps can be taken to add generation and dispatchable capacity where needed before retiring a thermal unit. These considerations are plant- and solution-specific and must be evaluated at each location.

One particular challenge exists at our Carson (CVFA) power plant. This facility directly serves a portion of our 69kV sub-transmission system that is expected to see significant load growth over the next five years and beyond. Without this generator, the sub-transmission system will no longer be adequate to serve existing and forecasted demands in the area. Detailed studies need to be performed to fully assess the impacts of CVFA's retirement on the adequacy and reliability of the local sub-transmission system. These detailed studies will include an assessment of mitigation options such as infrastructure upgrades, utility-scale renewable generation, DERs, demand response or a combination of these options. It's important to note that the combined solutions must provide the same services this power plant currently offers.

### **Under-resourced communities**

Our Campbell plant (SPA) and the McClellan Gas Turbine thermal power plants are located in areas with a sensitivity score of high or moderately high on our Sustainable Communities Priority Map. In terms of our community, modifying or retiring McClellan and Campbell would have the greatest impact on our under-resourced communities relative to our other thermal plants because they're located in areas of SMUD territory with some of the highest sustainable communities' sensitivity scores, see Figure 6. Decisions about the future of these plants will include discussions and engagement with the community.

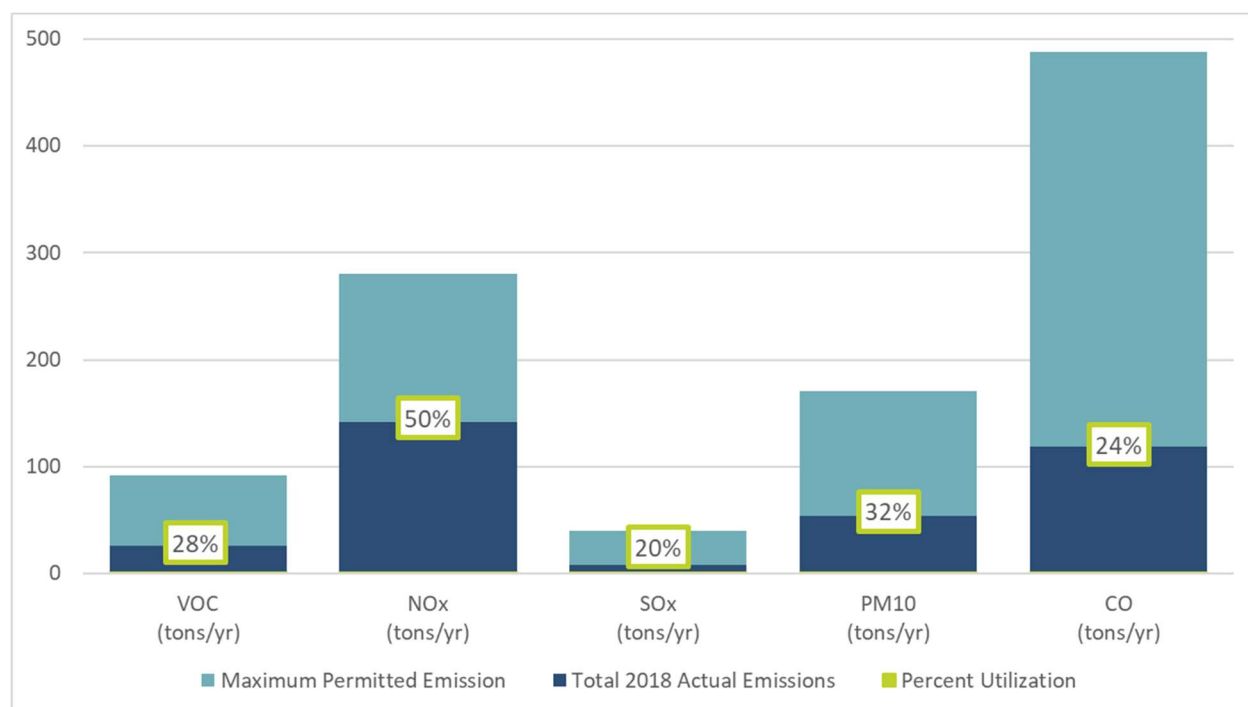
**Figure 6. Thermal power plant locations**



### Air quality considerations

Currently, we operate our thermal power plants far below their permit limits and will continue to look for opportunities to reduce our emissions. Our utilization rates are shown in the boxes below in Figure 7, a comparison of the power plants' maximum permitted emissions and their actual 2018 emissions as regulated by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and the U.S. EPA. Studies show that criteria pollutant emissions, such as Nitrogen Oxide (NO<sub>x</sub>), from fuel combustion in buildings and light-duty passenger vehicles present higher health risk concerns in Sacramento than SMUD's power plants. Electrifying homes and buildings will result in significantly improved regional air quality.

**Figure 7. Comparison of maximum permitted emissions and 2018 actual emissions**



The best way to determine the impact of air pollutant emissions on nearby communities is to perform a refined health risk assessment of each thermal power plant. Health risk assessments calculate the potential health risk to individuals over time using various real-life data, such as the height of the power plant's stack, temperature of the pollution release and proximity of neighborhoods, schools, hospitals and other work sites. Impacts on health risk can be looked at in terms of the potential to increase one's cancer risk<sup>50</sup>.

In 2018, SMUD submitted to SMAQMD separate health risk assessments for the Carson Ice, Proctor & Gamble and Campbell cogeneration power plants. The assessments were based on individual facility 2016 operating data. We found the cancer and non-cancer risks associated with each power plant are below the thresholds indicating any significant health impacts to our neighboring communities. This includes the South Sacramento/Florin Community, which is actively working with SMAQMD to implement a Community Air Monitoring Plan under Assembly Bill 617 (Community Air Protection Program).

In 2018, SMUD submitted a separate health risk assessment for the Cosumnes Power Plant. While the plant's cancer risk is above the 1.0 threshold limit, the risk level is determined based on the plant's maximum *permitted* emissions rather than *actual* emissions, and is mitigated because the power plant is in a sparsely populated area with no sensitive receptors, such as K-12 schools or hospitals.

<sup>50</sup> Cancer Risk is the theoretical probability of contracting cancer when continually exposed for a lifetime (70 years) to a given concentration of a substance. The risk is presented as the number of chances in a million of contracting cancer.



For comparison, the SMAQMD lists several types of facilities with cancer risks well above our assessed risks. These other facilities include a dry cleaner, two chrome plating shops and over 200 diesel-fired internal combustion engines. Although not updated by the Air District since 2004, it's expected that a majority of retail gas stations will continue to have cancer risks above the one in a million-cancer risk threshold.

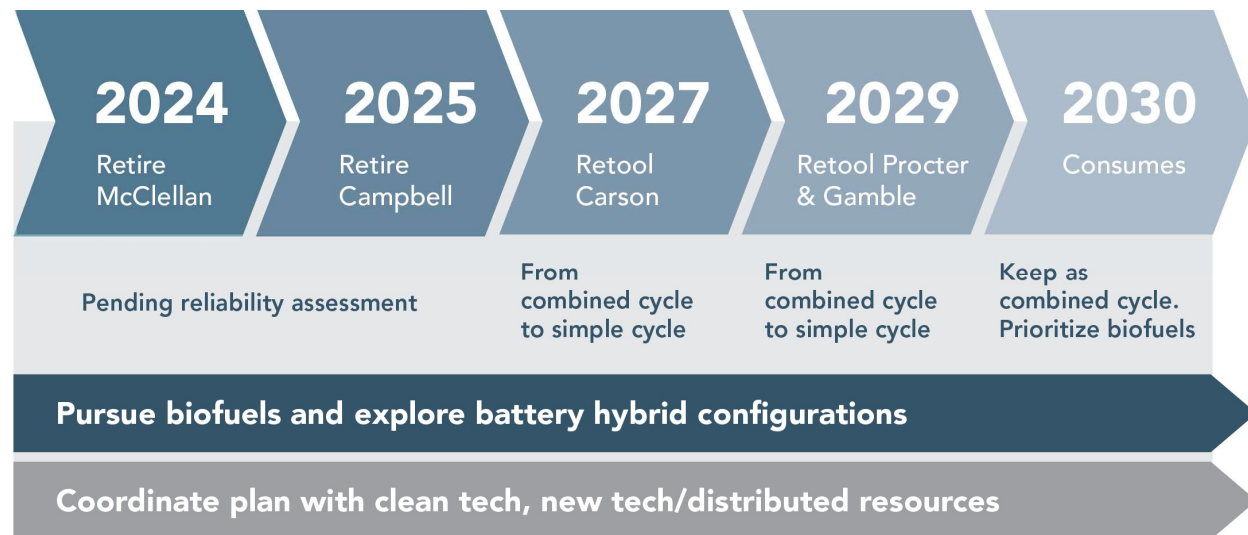
## Thermal transition options considered

To inform our Plan, we consulted with IEC Corporation to identify the latest technologies available for our thermal power plants and Black & Veatch to provide the status of new resources and alternative fuels. Listed below, our study focuses on three broad options for decarbonizing our thermal power plants by 2030.

1. **Thermal power plant retirement:** Under this scenario, by 2030 we'll retire our thermal fleet and completely eliminate our reliance on fossil-fuel derived energy and reliability services from neighboring markets, including all energy purchased and sold.
2. **Refueling with zero carbon fuels:** As part of this scenario, we'll evaluate the technology landscape and feasibility of replacing all fossil fuel used at our thermal power plants with renewable or carbon-free fuels by 2030.
3. **Reimagining our thermal fleet:** We'll continue to leverage the reliability and cost-effectiveness of our thermal fleet and reimagine operations under fuel and emissions constraints. The thermal power plants would become flexible peaking units, providing short runs with lower capacity factors and ancillary services thereby eliminating their cogeneration status and greatly reducing their GHG footprints to absolute minimums.

Each of these options were considered under similar assumptions, included any steam sales obligations with our neighboring manufacturing facilities, and the schedule shown below in Figure 8. As we make and implement decisions, this Plan will be revised and expanded to account for on-the-ground conditions and advancements in technology and infrastructure.

Figure 8. Thermal retooling schedule





## Evaluation of thermal power plant retirement

We also studied retiring our thermal units and relying solely on proven clean technologies to provide reliability services and energy for our customers. What's challenging under this option is replacing reliability services with non-carbon emitting resources in all hours throughout the year. The results of our analysis were similar to our previous studies: Retiring our thermal power plants and relying completely on proven clean technologies is possible, but it's an expensive option that may not be reliable under every weather scenario.

Beyond building for annual energy needs, our updated analysis of this option found the need to build over 3,000 MW of 4-hour duration batteries coupled with 5,000 MW of additional local solar generation (total resource build calls for 8,000 MW of solar).<sup>51</sup> These additional 8,000 MW of resources, beyond our base resource build in this scenario, are needed to minimize risks that could result in local blackouts similar to the outages faced by California customers during the heat storm of 2020. Again, these resources are needed to achieve only minimum reliability standards in 2030. If this option is considered further, we'll need to do an intra-hour analysis to identify additional firming resources such as batteries to address intra-hour variability, where momentary cloud cover can reduce the output of a solar field by over 50% in a matter of seconds.

This scenario also requires over 3,200 MW of resources to be built and operated outside our service territory. This means, an increased reliance on energy imports. There are significant economic risks to developing energy within a neighboring balancing authority such as CAISO. In particular, within California, solar is already dominating the market and flooding solar generating hours with low-cost energy. This is currently causing the market price for energy to be negative, meaning we must pay someone to take the energy if we cannot deliver it to our customers. This flood of generation is also starting to fill up available transmission lines, meaning there are times when we may not be able to access the generation we need. Our most economic decision during these instances could be to curtail our utility-operated solar and wind generators, essentially paying our generators to stop generating. In the study of this option, solar and wind were curtailed 7.5%. Batteries and other storage technologies mitigate this issue, somewhat. Lastly, additional analyses will also be needed to assess the impacts to our transmission and distribution system under this continuous high-import scenario.

### Long-duration energy storage

To help overcome reliability challenges associated with high penetrations of renewables and make thermal retirement more viable, long-duration energy storage (LDES) is one potential opportunity worth continued exploration. While still an emerging market, long-duration storage such as flow batteries and thermal storage may one day be available to help us overcome multi-day weather events impacting renewable generation, as identified in our 2040 Clean Energy Plan and our studies to support this Plan.

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<sup>51</sup> Longer duration, 8-hour, batteries could be used to meet this need, but for consistency, this measure uses equivalent 4-hour batteries.

Although many consider batteries with a duration longer than 4-hours as “long-duration,” we use the following classifications to differentiate our LDES needs.

- Short-duration: 4-hours or less
- Intra-day duration: 5 to 12-hours
- Inter-day duration: 13 to less than 48 hours
- Multi-day duration: 48 hours to 168 hours (1 week)
- Long-term or seasonal energy storage: beyond 168 hours (For example, technologies that can store energy for use in a later “season” such as from summer to winter.)

In this Plan’s technology selection and evaluation, we explored “multi-day duration.” However, existing and proven technologies do not meet the 48-hour minimum.

- Compressed Air Energy Storage has a proven duration of 3-24 hours.
- Flow batteries have a proven duration of 2-12 hours.
- Lithium-ion batteries have a proven duration of 0.5-8 hours.
- Molten salt thermal storage has a proven duration of 6-7 hours.
- Pumped hydro storage has a proven duration of 6-24 hours.

Black & Veatch concluded that, while short-duration energy storage is a well-established equipment supply area, multi-day LDES is not. The largest gap for these technologies is the successful integration and sub-sequence control of the minimally required demonstration prototype that’s capable of being scaled up. At this time, the development of these technologies is not assured and there are questions about their performance in extreme weather conditions. Therefore, they were not included as a specified element in our plan. With additional research, development and commercialization, these emerging technologies may be feasible for inclusion in our resource portfolio by 2030. We must also allow for flexibility in the implementation of our plan to allow for breakthroughs in these and other viable technologies before 2030.

## Evaluation of refueling with zero-carbon fuels

We also considered augmenting, or fully replacing, fuels with renewable fuels. There is a wide-range of fuel options and levels available. Given the nature of this Plan, we did not attempt to model every permutation of the resources. We did however, set some benchmarks for additional analyses based on our evaluation of the most promising fuel sources. We considered the viability, availability and cost of the options and the technical feasibility of using each fuel at our power plants, including the need to switch out generation equipment.

### Renewable hydrogen

Hydrogen is one of the most abundant elements in the universe and can be found in the fuels we use as well as our air and water, making it an attractive resource option. Hydrogen can be used as a fuel source either through direct combustion or non-combustion technologies. For the Plan, we considered using renewable hydrogen at our existing power plants or building new facilities. Our evaluation included an assessment of the hydrogen in natural gas blending limits at each site as well as the technical performance, cost considerations and the market availability of renewable hydrogen. We did not consider options to blend hydrogen with fossil natural gas as these are carbon *reduction* strategies and would not *eliminate* our GHG emissions.

## Hydrogen use

With IEC Corporation, we began by analyzing the current technology configurations and turbines at our existing power plants. Unfortunately, the turbines available today cannot burn 100% hydrogen. We also explored using hydrogen as a fuel supplement, where hydrogen is co-fired with natural gas or RNG. Some of our turbine models can currently use a fuel blend of up to 50% hydrogen.

We're proactively reaching out to others in the industry to assess their efforts in advancing hydrogen technology and seeking opportunities to potentially partner on hydrogen demonstration projects. Some of the turbine manufacturers, such as General Electric, Siemens and others are studying the future potential of direct hydrogen combustion within their turbines. We'll stay active in this space to ensure that any technology developments that make this option feasible by 2030 are considered and will update our plan as needed.

## Market availability, storage and transport

The most promising process for renewable hydrogen is electrolysis, which is the process of splitting water into hydrogen and oxygen using electricity. Most hydrogen today is produced by a steam methane reforming process using fossil natural gas. RNG may also be used, but the costs and technical challenges will be compounded with that fuel option.

Electrolysis produces a zero carbon fuel when the electricity used for the process is renewable or zero carbon. Excess solar may be the ideal candidate for hydrogen production, resulting in hydrogen stored for later use.

Currently, the hydrogen fuel market is highly dependent on a small number of distribution facilities. In 2019, a Northern California plant was down for several months, reducing the available supply by nearly half for the San Francisco Bay and Sacramento regions.<sup>52</sup> This challenge may also be an opportunity to explore partnerships or joint ventures for local development of a hydrogen infrastructure. Currently, large-scale renewable hydrogen production is not available in our region. As such, the fuel would need to be either shipped via trucks or freight trains. The amount of hydrogen required would also require semi-constant deliveries of the fuel to each affected power plant.

Since hydrogen is the lightest element, it can be challenging to store large quantities because of the need for higher pressures or lower temperatures than natural gas. Intermediate storage of hydrogen could also become a blight on neighboring communities. Cosumnes, as a remote site, could host a possible pilot hydrogen production facility and storage tanks. Some storage options for hydrogen are described below.

**Compressed hydrogen storage** is the most common method used by industrial hydrogen consumers. Depending on the amount of hydrogen being stored, pressures can range from 2,000 to 10,000 psia (pounds per square inch absolute) with the high end of this range more suitable for small cylinders used in transportation rather than large bulk tanks.

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<sup>52</sup> California Energy Commission staff. 2020. Final 2019 Integrated Energy Policy Report. California Energy Commission. Publication Number: CEC-100-2019-001-CMF. Page 99.

**Hydrogen liquefaction** may be a feasible option, depending on the amount of hydrogen storage needed. Storing hydrogen in this fashion requires energy, more complicated auxiliary equipment, and extremely cold temperatures (i.e. -423°F) need to be maintained. The storage volumes for liquefied hydrogen would be much smaller than that for compressed storage and depending on the scale of storage required, therefore liquefaction can still be more economical than compressed hydrogen storage, particularly at large scales. An additional consideration with the liquefaction equipment is the thermal cycling and ramp time. Cycling from ambient to the extremely low temperature thermally stresses the equipment.

**Geophysical hydrogen storage** takes advantage of existing geological formations such as salt caverns, rock caverns, and depleted gas fields. These formations are an opportunity to store large volumes of hydrogen. Conceptually, hydrogen is compressed and stored in an existing geological formation and then withdrawn for later use. The details of this concept are extremely site specific and would require extensive geological study to locate an appropriate site.

**Pipeline hydrogen storage** may also be feasible as pipelines are the most cost-efficient way to transport large quantities of hydrogen over long distances. There are currently approximately 1,600 miles of hydrogen pipelines installed in the U.S., primarily in the Gulf Coast region, which are predominantly operated by major industrial gas companies. Hydrogen pipelines are considered mature technologies and can typically cost up to 10% more than a traditional natural gas transmission pipeline. Hydrogen will tend to permeate through metal over time, resulting in gas loss and pipeline embrittlement.

### Potential role in SMUD's future portfolio

We found that while hydrogen production and storage is technically feasible using commercially available technology, renewable hydrogen has many challenges and definitive use before 2030 cannot be assured. The Black & Veatch study also found that blending 50% renewable hydrogen with 50% natural gas would yield only a 20% reduction in GHG emissions. This is due to the combustion characteristics of hydrogen where molecules are too small and flame speed is too high to properly consume all fuel within the turbine. Similarly, NOx emissions from our turbines would also increase requiring additional emission controls and mitigation.

While this strategy is valid to reduce our carbon emissions, it will not get us to zero by 2030 on its own. We believe that this is an option to keep in consideration for possible use with RNG. For our 2030 Zero Carbon Plan, renewable hydrogen should be considered an emerging fuel, with the potential option of utilizing one of our thermal power plants as a demonstration site. In the long-term, our Cosumnes Power Plant may be a reasonable site to consider fully replacing with hydrogen production coupled with a combustion power plant.

### RNG: Biogas and biomethane options

Of particular interest, RNG can be used as direct replacement for the fossil natural gas we currently use. Although RNG is relatively common, the production of these fuels is generally much more expensive and less accessible than fossil fuels. There are regional sources of biogas and it can also be sourced from landfills and municipal wastewater treatment plants,

which can be refined into RNG. As part of our studies, we evaluated the current production levels and the resource potential for future local production.

RNG is a term used to describe biogas that has been conditioned and purified to become pipeline quality to replace fossil natural gas. RNG can be produced via biochemical means like anaerobic digestion of dairy wastes, food wastes, wastewater, landfill wastes and other organic wastes. RNG can also be produced thermochemically via gasification (partial combustion) and methanation processes. Natural gas in the interstate pipeline system is generally 85% to 95% methane, the predominant energy carrying molecule in natural gas. Raw biogas typically has a methane content between 45% and 65% and must go through a series of refining steps to replace natural gas. Refinement includes removing moisture, carbon dioxide and trace-level contaminants and other impurities. Once purified, the gas can be injected into a natural gas pipeline or used as a substitute for fossil natural gas.<sup>53</sup> We currently have a long-term contract to buy RNG.

Black & Veatch found that the most accessible local sources of biogas resources are from landfills and wastewater treatment plants in the broader Sacramento region. Their assessment found that while the local supply is too limited to replace the *full* fuel use of our power plants, we identified opportunities to develop an additional supply of local biogas that could be used at our power plants. Further study is needed to quantify the gas potential available, assess the viability and develop these resources.

### **RNG: Emerging solid-fuel biomass conversion opportunities**

The conversion of woody biomass to biogas via thermochemical conversion technologies is an emerging energy conversion pathway to produce RNG. We expect that biogas production could act as an energy supply and a viable disposal option of wood waste from forest thinning or wildfire mitigation projects, like in our UARP transmission corridor. Although the economic viability and total resource availability of this option is currently uncertain and complex due to inherent nature of catastrophic wildfires, the availability and pricing of woody biomass from wildfire thinning activities could improve over the next 10 years. With new wildfire management initiatives in California, Black & Veatch expects the amount of wood fuel available in the broader Sacramento region, when compared to the supply of sustainable forest-based wood estimates in prior studies, to increase significantly. This biomass is anticipated to be partly used by existing biomass power plants competing for this resource. There are three biomass power plants in the Sacramento region that are strong candidates for use of this “high hazard zone” woody biomass to meet contract opportunities.

### **Renewable diesel**

We studied the technological specification of our existing power plants and found that most of our turbines are already capable of firing “#2 Fuel Oil,” which is essentially diesel fuel. Following air quality permitting and licensing approvals, our power plants would then need minor physical modifications to allow them to burn renewable diesel.

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<sup>53</sup> For more background information on sources for RNG, see: An Overview of Renewable Natural Gas from Biogas. U.S. EPA, July 2020. EPA 456-R-20-001. [https://www.epa.gov/sites/production/files/2020-07/documents/lmop\\_rng\\_document.pdf](https://www.epa.gov/sites/production/files/2020-07/documents/lmop_rng_document.pdf). Last accessed 2-9-2021.

Renewable diesel is fuel that is made from plant oils and animal fats. Renewable diesel is currently being developed commercially for some truck transport applications. IEC Corporation and SMUD staff have reached out to several renewable diesel producers to gauge the feasibility of this approach. We were not able to identify sufficient supply at an affordable cost for power generation. This option will continue to be evaluated in the future as the production technologies mature and additional supply is available in the market.

## Reimagining the operations of our thermal fleet option

Our analyses repeatedly show that the most expensive hours to deliver energy are during our peak hours and during low solar and wind production periods. These periods are generally constrained to a few hundred hours a year. Additionally, high-level analyses indicate that most large electricity systems can support up to 80% to 90% proven clean technologies if existing gas resources are left online.<sup>54</sup> Within this option, we consider reimagining operations at our thermal power plants such that we do not emit GHGs.

### Carbon capture and sequestration

One option for eliminating carbon reduction at our thermal power plants is to capture the carbon before it's released into the atmosphere. The main post-combustion carbon dioxide separation techniques and technologies considered include amine-based chemical absorption, solid sorbents and membranes. Although solid sorbents and membrane technologies hold great potential and are promising for the future, the team found that post-combustion capture technique based on chemical absorption using amine-based absorbents is the most proven technology and commercially available at this time to effectively remove carbon dioxide from flue gas emissions.

Black & Veatch found that carbon capture technology could be integrated into our system. However, there are challenges including cost, implementation and viable storage options. The carbon capture technology alone will require a substantial capital commitment of over \$800 million for our Cosumnes Power Plant. However, the technology could reduce our carbon dioxide emissions by over 90%, and coupling it with renewable fuels, could help us realize carbon free operation. Although capturing our thermal GHG emissions is technically possible, we must consider this option holistically. This option will require locating permanent geological storage and a commitment to long-term debt that ties us to natural gas.

We're currently evaluating NET Power's power plant design, which have no stacks. Instead, they use the Allam-Fetvedt Cycle.<sup>55</sup> These plants burn fossil fuel with oxygen instead of air to generate electricity without emitting any carbon dioxide or NOx, the main atmospheric and health contaminant emitted from gas plants. This is a new, high-pressure, oxy-fuel, supercritical carbon dioxide cycle that generates low-cost electricity from fossil fuels while producing near-zero air emissions. All carbon dioxide that is generated by the cycle is produced as a high-pressure, pipeline-ready by-product for use in industrial processes, or that can be sequestered

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<sup>54</sup> California Energy Commission. *SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future*. March 2021. Available online: <https://efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349>. Last accessed: 16 March 2021.

<sup>55</sup> <https://netpower.com/technology/>. Last accessed 23 March 2021.



underground in tight geologic formations. The challenge of determining how to dispose of the carbon is unsolved.

The technologies we studied do capture carbon dioxide, but for this technology to be zero carbon, we must find approaches to sequester the carbon such as long-term geological storage where carbon is stored in permanent geologic formations, for instance, a deep saline reservoir. There is a growing body of research regarding sequestration in the greater Sacramento area. Industry research has found that there is space in California to store carbon dioxide underground safely and permanently.<sup>56</sup> Thinking about SMUD assets, one study from Lawrence Livermore National Laboratory found a potential carbon dioxide sink just over 16 miles away from our Cosumnes Power Plant. This sink is near a saline aquifer in the Sacramento Basin, one of California's larger marine basins with potential sequestration opportunities.<sup>57</sup> As our 2030 Zero Carbon Plan continues to evolve, we'll seek opportunities to partner with industry to further explore carbon capture and sequestration potential in the greater Sacramento area.

### **Retooling and RNG**

As we studied the options, interestingly and somewhat counter intuitively, it became obvious that the very things that made most of our power plants so efficient was limiting their ability to integrate into our zero carbon future. Due to start up and shut down restrictions and steam host obligations, many of our plants are held online even during the most expensive hours to deliver energy or during high-solar and wind production periods. With that in mind, we reimagined our thermal fleet operations to be as flexible as possible, generating power when needed for shorter durations and thus significantly reducing GHG emissions. This option was shown to be the most viable way forward and was studied in depth.

As previously discussed, the heat recovery systems make these plants efficient and valuable resources, but these systems can also be damaged if cycled too quickly. Disconnecting our power plants from their heat recovery systems will make them less efficient, but it'll also make them incredibly flexible, able to be turned on and off quickly and able to sit idle for long-periods of time. In this configuration, batteries can also be added to the peaking plants making the gas turbine appear to be online without burning any fuel. Understanding that solar and wind energy resources need flexible power plants that respond in seconds, it seems to follow that making these plants more flexible would allow for greater adoption of proven clean technologies. One tool to achieve this is to retool our thermals to make them as flexible as possible.

When we look through our past studies, we find that the periods we most need our thermals are usually constrained to a few hundred hours a year. This may make it possible to leverage our existing RNG contracts to fuel our gas plants. We currently have a long-term agreement in place for RNG at a maximum limit of 12,800 dekatherms (dth) per day. This gas is currently nominated/delivered to the Cosumnes Power Plant for RPS credit. Foregoing RPS credit, we can renominate this gas to any of our power plants. In this case, we're using RNG that is produced to pipeline specifications and delivered via intrastate pipeline and is a drop-in replacement that all our existing power plants can use without modification. The next challenge

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<sup>56</sup> <https://www.smud.org/-/media/Documents/Corporate/About-Us/Board-Meetings-and-Agendas/2020/July/1-Dr-George-Peridas--Achieving-Carbon-Neutrality-in-California.ashx>

<sup>57</sup> [https://www.westcarb.org/pdfs/geologic\\_co2\\_sequestration%20\\_potential\\_hq.pdf](https://www.westcarb.org/pdfs/geologic_co2_sequestration%20_potential_hq.pdf)

is that RNG, including our current agreements, is injected into the pipeline as soon as it is produced. For this option to work, we need to store the gas until it's needed.

We currently have contracts with two natural gas storage fields capable of storing 2 million dth of natural gas. These contracts are set to expire within the next couple of years. Our daily burn averages approximately 110,000 dth per day. Between both storage contracts, we're able to withdraw up to a maximum of 40,000 dth per day. Our storage arrangements allow us to balance supply and demand during operational challenges as well as help mitigate financial risks from periods of extreme price fluctuation. A large part of our storage capacity is set aside to support running our plants during event where natural gas becomes scarce. This, and other storage options, may be useful as we consider relying less on natural gas.

Operationally this would mean managing our thermal units like our hydroelectric system. We manage our hydro system to ensure that we meet minimum flow requirements for fish and recreation. Additionally, we must manage our water releases to ensure we have adequate water for generation during the late summer and early fall, before reservoirs are refilled. In essence, we manage a limited fuel source for maximum benefit to our system. For our RNG, we'd need to adopt a similar strategy where we store our gas in offsite storage fields and only use this gas when we need it.

As briefly mentioned above, General Electric has developed a battery designed to augment the operations of their engines and intended to reduce the need to turn on the power plant during short duration peak energy needs. These batteries would increase the flexibility and operability of our power plants, reduce our need for spinning reserves, and most importantly, reduce the need for RNG.

## Our thermal transition plan

Following the studies, we prepared the following strategy to transition our natural gas generators to flexible renewable peaking plants. We've drawn on many different studies and data for this Plan and note that other options may prove more viable in the future. As we move to implementation, we'll need to remain flexible and open to new ideas and strategies. The following recommended natural gas generation repurposing strategy, coupled with the proven clean technologies and new technologies and business models strategies, will help us achieve our 2030 Zero Carbon Plan.

Preliminary analysis shows that McClellan and Campbell plants could be retired in 2024 and 2025, respectively. Prior to committing to retirement, we'll perform a detailed reliability assessment in 2021. Carson Ice and Procter & Gamble will be converted to simple cycle peaking plants in 2027 and 2029, respectively, and considering steam host obligations and staggering the time between retooling efforts. Cosumnes, while the most efficient and largest of the thermal plants, is not as nimble. Currently, we plan to keep Cosumnes as a combined cycle plant and locate additional sources of RNG to buy and store. Our reimagined power plants in 2030 are shown in Table 9.



**Table 9. SMUD thermal power plant overview in 2030**

Power Plant	Generator Type	Unit	Capacity (MW)	Fuel Source
Sacramento Power Authority at Campbell Soup	<b><u>Retired*</u></b>			
McClellan Gas Turbine	<b><u>Retired*</u></b>			
Central Valley Financing Authority at Carson Ice	Combustion Turbine	1	50	Biofuels and TBD**
	Steam Turbine	2	<b><u>Retired</u></b>	
	Combustion Turbine	3	50	Biofuels and TBD**
Sacramento Cogeneration Authority at Procter & Gamble	Combustion Turbine	1	50	Biofuels and TBD**
	Steam Turbine	2	<b><u>Retired</u></b>	
	Combustion Turbine	3	50	Biofuels and TBD**
	Simple Cycle Peaking	4	50	Biofuels and TBD**
SMUD Financing Authority at the Cosumnes Power Plant	Steam Turbine	1	207	Waste Heat
	Combustion Turbine	2	207	Biofuels and TBD**
	Combustion Turbine	3	207	Biofuels and TBD**

*\*Pending reliability assessment.*

*\*\*Final 2030 fuel mix is to be determined. Dependent on options available and may include one or more of the following: hydrogen, biogas, RNG, biofuels.*

### Planning for a possible retirement

Ultimately, we may choose to refuel some plants, retire others, or retool them all. As we transition toward our zero carbon goal, we'll carefully evaluate all possible options and will retire units only when we can do so reliably. Before making any decisions, thorough analysis and thoughtful planning will be needed with robust testing and additional studies completed. We may also consider cases where the solution or replacement generator is operated in parallel until we have confidence that the replacement system is reliable. When we commit to retire a power plant, we may opt to have the plant remain in place unused until the replacement generator demonstrates reliability over several years before deciding to fully decommission the plant.

### Researching grid-scale solutions

As part of our analysis, we identified several tools that we can use as part of our 2030 Zero Carbon Plan. These include retirement, refueling and reimagining as well as new technologies such as alternative biofuels, long duration storage, renewable hydrogen and carbon capture. As we implement this plan, we may find that the tool we employ for one thermal asset may not be the right tool for another. We'll focus on place-based strategies and work with our communities where these assets are located to design solutions that ensures Sacramento communities are livable, resilient, and ready to embrace a low carbon future.

While retiring and retooling our gas plants will drastically reduce emissions, the use of natural gas will not be completely eliminated unless we identify sufficient amounts of renewable fuels or develop alternative generation sources. Initial studies indicate about half of our fuel needs after retooling can be met with RNG that we already have under contract. Additional fuel sources or

technical advancements are necessary to close the remaining gap and fully eliminate the use of natural gas. We're looking at several options to address this:

- Biofuels and other clean fuels, including RNG, green hydrogen, biodiesel and ethanol.
- Long duration storage which could include technologies such as flow batteries, thermal storage and liquid air energy storage.
- Carbon capture and storage, including the Allam-Fetvedt cycle to assess the feasibility of this and similar technologies in the Sacramento region.
- Pumped storage hydro using our existing UARP dams and hydroelectric facilities.

This research and the ability to secure sufficient volumes of biofuels will allow us to scale up the most promising technologies. We'll continue to evaluate and seek innovative options as new technologies emerge.

As we approach 2030, it'll be important that we remain nimble and ready to integrate these new technology models as they become available ready over the next decade.

## Proven clean technologies strategy

### Proven clean technologies

- This strategy, when implemented with the natural gas generation repurposing strategy, will reduce our emissions by at least 90% of 2020 levels by 2030.
  - We'll exceed the State 60% RPS target by 30%.
- Continue aggressive customer DER programs.
  - Demand response and flexible load
  - Rooftop solar
  - Customer batteries
  - Transportation electrification
  - Building electrification
  - Energy efficiency
- Develop a robust portfolio of local and regional utility-scale renewables and batteries to complement our thermal retooling plan.
  - Local utility-scale solar 1,100 to 1,500 MW
  - Local 4-hour batteries 700 to 1,100 MW
  - Regional wind 300 to 500 MW
  - Regional geothermal 100 to 200 MW
  - Regional solar 100 MW

As our next strategy, we explored the landscape of proven clean technologies. These are additional zero carbon emission resources that can be developed by 2030 using proven, commercially available technologies. Our 2030 Zero Carbon Plan will rely heavily on proven clean technologies, such as solar and wind.

As we continue to rely more on resources whose output are dependent on weather conditions, there will be increases in variability and uncertainty related to available supply. This will require us to carry more reserves or backup resources to maintain the same level of reliability.

This challenge exists when we have either too much or not enough supply. For example, we must account for how much our solar and wind generation could vary from forecasts within the hour, and ensure that we're carrying enough supply that has the flexibility to increase to meet shortfalls and decrease in order to accommodate excess generation at any given time.

Although these challenges cannot be solved with today's available technology, some of the things that can help alleviate them include:

- 1) **Diversification of resources:** To avoid over-reliance on any one fuel source, it'll be important to build our portfolio of resources from different technologies. Together, resources from various technologies and geographic locations can complement each other and mitigate some of the weather, timing and over/under-supply risks. To accomplish this, we must continue to research and explore the different resource types and be thoughtful about how we formulate our supply portfolio.
- 2) **Evolution of energy markets:** Depending on how energy markets continue to evolve, they may be an important to helping us meet carbon reduction goals. Grid

regionalization could accelerate expansion of planning and operations over a larger footprint, which would enhance the grid's ability to efficiently match supply and demand and reduce curtailment of renewable energy. Some of these benefits can be seen in market re-designs such as the Energy Imbalance Market and potentially in initiatives like Enhanced Day Ahead Market. It'll be important for us to monitor these changes and act to influence them accordingly.

- 3) **Demand side management:** Historically, supply has been responsible for chasing demand and it is our responsibility at SMUD to ensure that this balance is maintained continuously. As the cost to maintain the same level of reliability increases as the proportion of variable and intermittent resources rise, it may make more sense for customers to have a more proactive choice in how this balance is maintained and how costs are allocated. This means understanding customer preferences and staying engaged with our customers will be critical.

The resource build expands SMUD's current resource portfolio and achieves all current environmental commitments and internal directions. The following resources were considered as additions to our portfolio by 2030.

- **Short-term reliability resources:** Short-term market contracts for capacity are generally from gas generators. However, by 2030, batteries may be a market option.
- **Energy storage:** Short duration (4 hours or less) energy storage batteries and pumped hydro.
- **Non-local renewable resources:** Renewable resources outside of SMUD's territory (solar, onshore wind, offshore wind, biogas/biomass and geothermal).
- **Local renewable resources:** Renewable resources inside of SMUD's territory, limited by resource availability (solar and biogas/biomass).

Our proven clean technology scenarios were layered onto the thermal transition options, exploring the limitations of the technologies over the full range of available technologies. Below is a more technical discussion of our findings and includes detailed information on our proven clean technology strategy, information on why we considered prospective technologies, as well as specific information on the technology considered as part of our 2030 portfolio and some potential locations.

## Capabilities of today's proven clean technologies

Achieving our ambitious carbon reduction goals without sacrificing reliability and affordability will be challenging. We need to understand how far these technologies can get us. In this section, we highlight the status of mature zero emission technologies available today and comparatively analyze how far these technologies have come since our 2040 Clean Energy Plan.

Our natural gas generators have characteristics that provide valuable energy and reliability services to our power grid. For many of our customers, our natural gas plants are synonymous with energy delivery, but our gas plants do more to keep the lights on than deliver electricity. They're also dispatchable by power system operators and associated real-time control systems to provide grid reliability services. Our gas resource, coupled with our robust hydroelectric system, is why we've been able to deliver energy to our customers at some of the lowest rates in the state with a strong reliability record.

Transitioning to zero carbon emission does not change the need for a reliable grid (see the section on Our commitment to reliable service). As we reimagine our energy system, we must also consider how to replace non-energy products provided by the gas plants such as, capacity, voltage support and reactive power. While there is a wide variety of clean resources, solar and wind are the most economic and abundant resources in California today. However, these resources are highly dependent on the weather. On most days, we can be reasonably confident they'll produce at least some energy, but sometimes thick fog, cloud cover, too little or too much wind or smoke and ash from wildfires unexpectedly reduce energy production. Additionally, generation from these resources do not *precisely* match the timing and shaping of our customer's demand for electricity.

Knowing that there are times when we cannot count on solar and wind like we do our traditional generation resources creates uncertainty. This uncertainty and the underlying intermittency make it difficult to balance our energy supply with demand. The strategies to address these limitations are limited by available technologies. Proven technologies currently require that we build more resources than we need, make sure there is sufficient supply, use energy storage to shift the energy to other times or some combination there between.

Thinking about the average household, most of their electricity use is in the morning when we are getting ready for work and kids ready for school, and in the early evening when we've finished work, are cooking dinner and heating or cooling the house. But in the early morning hours and evening, the sun is low on the horizon or completely set. Also, there are many occasions when the wind isn't blowing during these times. Currently, we fill these "gaps" when solar and wind aren't available with traditional generation resources (such as our gas plants or hydroelectric resources), but as we move toward zero carbon, we'll need to have other options.

## Resources included as proven clean technology

The following are the known proven clean technologies. Not all of these technologies are currently accessible due to limitations on development, cost and geographic considerations. With each section, we discuss the technology and the ability of these resources for our plan. The resource potential, or the amount of developable resource, was estimated using SMUD's internal expertise and consultation with Black & Veatch and E3.

Black & Veatch performed a variety of resource assessments, primarily focused on specific geographical areas. E3's analyses were informed by the 2019-2020 CPUC IRP process, and more specifically, the adopted Reference System Plan. Assumptions for the first available year of candidate renewables resource types in the 2019-2020 IRP cycle reflect feasible timelines for bringing resources online based on the current interconnection queue and typical development timelines.

The CPUC IRP assumptions on the technical potential of candidate renewable resources were based on data developed by Black & Veatch for the CPUC's RPS Calculator v.6.3.<sup>58</sup> The Black

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<sup>58</sup> Black & Veatch, *RPS Calculator V6.3 Data Updates*. Available at: [http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Website/Content/Utilities\\_and\\_Industries/Energy/Energy\\_Programs/Electric\\_Power\\_Procurement\\_and\\_Generation/LTPP/RPSCalc\\_CostPotentialUpdate\\_2016.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Electric_Power_Procurement_and_Generation/LTPP/RPSCalc_CostPotentialUpdate_2016.pdf). Note that although the data was developed with the intention of incorporating it into a new version of the RPS Calculator, no version 6.3 was

& Veatch study includes an assessment of potentially viable sites and resource potential within those sites to determine an overall technical potential for each renewable technology. The Black & Veatch study uses geospatial analysis to identify potential sites for renewable development in California and throughout the Western Interconnection. Table 10 summarizes the potentials by region, which in some cases may change depending on new transmission, resource preference, or our assumed willingness to pay more for new resources.

**Table 10. Summary of proven clean technology resource potential ranges (MW)**

Resource	Location	Potential (MW)
Hydro	N/A	0
Biomass	Sacramento and surrounding	270-900
Solar PV	Sacramento	1,500-3,764
	Southern CA	22,800
	Northern CA	1,900
Onshore Wind	Sacramento	0
	California	468
	Out-of-state	1,054-1,554
Off-shore Wind	California	1,600
Geothermal	California	41-92
	Out-of-state	183
Storage – Battery	Sacramento	Not limited
	California	

## Hydro

SMUD's existing hydro resources will be an integral part of the zero carbon plan as carbon free and flexible assets that are capable of mitigating some intermittency from solar and wind. Although hydro will continue to be a vital part of our system, we did not include new resource potential in this Plan. In our experience, new hydro resources, including pumped hydro, are not likely to be built in California due to the cost, permitting challenges and environmental concerns. We also see a broader trend to reduce the number of existing dams. However, we'll continue to study options to increase efficiencies and the capabilities of our hydro resources as well as procure new small hydro projects as appropriate.

## Solar photovoltaics

Solar energy has the largest potential for resource development in California and into the southwest U.S. Solar is the lowest cost proven clean technology available and has potential for local development. Advances in battery technologies make co-locating solar with battery storage a cost-effective option for most projects.

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developed. This is because the IRP system plan development process replaced the function previously served by the RPS Calculator.

Through years of development efforts and feasibility studies, we've identified local areas best suited for solar development considering available land, environmental impacts, transmission access and system reliability. Within Sacramento, we estimate nearly 1,500 MW of utility scale solar could be developed with little or no major system upgrades and environmental impacts. Up to 3,764 MW of solar development may be developed locally, at higher cost. More studies are needed to assess the precision of this added cost, including land-use concerns, transmission and electricity system studies.

We also considered the procurement of solar energy resources from other balancing authority areas, including the CAISO. Given the large resource potential available in Southern California, additional out-of-state resources were not considered in this study. E3 assumed we could access to 5% of the CA statewide development potential for solar, yielding access to 22,800 MW of solar in Southern California and 1,900 MW of solar in Northern California, not including SMUD's service territory.

Rooftop solar was also considered as a proven clean technology. Capital costs to build or install these resources exceed three times the price of utility solar. Additionally, SMUD's energy purchase costs for rooftop solar are much greater than the power purchase price of utility-scale solar. In many cases, utility-scale solar can take advantage of scaling for labor and material costs, resulting in a unit cost of nearly \$1 per watt (direct current). However, in most residential applications, this cost can exceed \$3 per watt (direct current).<sup>59</sup> In addition, utility-scale projects can be oriented to maximize production, whereas rooftop systems are generally limited to the orientation of the house and roof. For example, a 50 MW utility scale PV project could power 15,000 homes, whereas the equivalent rooftop system would only power about 9,500 homes.

### **Onshore wind**

Wind was once the commercially dominant renewable resource in California. However, wind development in California has slowed to a trickle as many prime wind resource areas have already been developed, have new transmission needs or, increasingly, state or local prohibitions are restricting new development. There are no viable locations for wind development within SMUD's service territory.

### **Solano wind resource area**

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. Even though delivery of Solano wind resources to SMUD's territory has not been fully studied as part of this analysis, this potential will be a great option for our zero carbon future.

Black & Veatch reviewed the potential of fully repowering all turbines within Solano County, California. Solano County has been heavily developed with wind for several years. Many turbines are of sufficient age to be worth repowering given advances in technology. Black &

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<sup>59</sup> [https://eta-publications.lbl.gov/sites/default/files/tracking\\_the\\_sun\\_2019\\_report.pdf](https://eta-publications.lbl.gov/sites/default/files/tracking_the_sun_2019_report.pdf)



Veatch reviewed existing wind project locations across the county. Sites already developed were assumed to be available for repower. They concluded that repowering and replacing older operating projects in the region could increase energy production in the region with fewer turbines.

### **California wind resource potential**

E3 assumed we could access nearly 10% of the remaining wind resource potential throughout California, in addition to the wind potential identified in Solano, as estimated for the latest CPUC IRP modeling effort. This results in the potential for an additional 468 MW of wind, located within the CAISO.

### **Out-of-state wind potential**

There is vast untapped wind potential in Wyoming and New Mexico. However, much of this potential remains undeveloped due to a lack of existing transmission. E3 assumed we could gain access for up to 1,000 MW of wind in those regions, provided we would be willing to develop new transmission.

Additionally, there is still undeveloped wind potential in Oregon, southern Washington and parts of Idaho. E3 assumed we could access 5% of the remaining potential, as identified in the latest CPUC IRP proceeding. This results in the potential for 554 MW of wind resources.

### **Offshore wind**

The wind potential off the Pacific coast is an untapped and valuable resource. The depth of the sea floor makes developing these resources challenging, which would necessitate floating applications. Many of these areas lack adequate transmission. Despite these challenges, offshore wind is expected to be a viable future resource. Black & Veatch studied offshore wind development off of Humboldt Bay and identified the potential for 1,600 MW of developable wind with the earliest operational year estimated to be 2030. Black & Veatch studied two options, one with new transmission to deliver power to SMUD (a higher cost option) and the other relying on CAISO transmission to access the power.

### **Geothermal**

Geothermal is a baseload resource operating at an 80% to 90% capacity factor. As one of the few resources that is both essentially GHG-free and available to serve baseload needs, geothermal resources can be an attractive future resource option. E3 estimated that we could have access to 10% of California's potential as calculated for the CPUC IRP, or 364 MW. Known locations with geothermal potential include Salton Sea, areas of Nevada and the Wilbur Hot Springs area. The geothermal resources in our 2030 Zero Carbon Plan include existing and new projects located in Northern and Southern California and Nevada. Black & Veatch's assessment indicated there is up to 50 MW of developable locations in Northern California, at higher cost than the resources identified by E3.

### **Biomass, RNG and biogas**

Biomass resources within Sacramento County and the other 15 surrounding counties could generate 270 MW to 900 MW, with the high end of this range costing more because it will cost more to collect and deliver that biomass to a power plant. Black & Veatch identified several



challenges limiting the long-term viability of biomass resources. These include lack of long-term feedstock supply contracts for woody biomass resources, opposition from environmental groups regarding existing biomass power plants and competition and pricing of biomass supplies in the Sacramento region. Despite some of these issues and challenges, significant progress has been made in evaluating and documenting carbon intensity issues and benefits for a variety of high-moisture waste biomass feedstocks, particularly in the case of animal manure such as dairy manure.

Research and development activities focused on lowering the cost of biogas upgrading equipment, biomass gasification and synthesis gas cleaning/methanation equipment are needed to make RNG costs competitive with fossil-based natural gas. These focus areas may provide some opportunities for SMUD to obtain research funding.

RNG derived from landfills and wastewater treatment plants appears to be economically feasible for use at our thermal power plants. Black & Veatch estimated that the resource potential for this gas is about 270 MW. However, future study will be needed to identify these locations and assess the viability of collecting the gas.

### **Energy storage**

Today's proven energy storage technologies can address many of our short-term balancing needs. These technologies help store energy for later use improving the flexibility and resiliency of our grid. Excess solar power produced on a particularly sunny day could be stored for use later in the evening when the sun isn't shining. Alternatively, energy storage can help less flexible baseload resources respond to changes in demand, by quickly injecting or extracting energy to match supply to demand.

The current limitations of lithium-ion based battery storage include lower duration, initial cost, lack of tax incentives, battery degradation and state of charge limitations. Many of these limitations such as cost, or lack of tax incentives could change in the near future. These limitations may be offset by avoidance of fuels cost exposure, simple maintenance and operations costs from fewer mechanical parts and the ability to arbitrage negative prices in the energy market or reduce curtailment of renewable generation.

For this Plan, we assumed that our potential for current battery storage is effectively unlimited.

### **Proven clean technologies complement thermal transition**

The most economical proven clean technologies are solar and wind, which are variable and weather-dependent. Generally, on their own, these technologies can provide only limited grid reliability services. Repeatedly, our past studies show that reliance on only current proven clean technologies would be very expensive and would not pass basic reliability tests.

Our studies showed the same results. Aside from the cost, there could be physical impacts and blight on our local communities from the development of thousands of MW of local batteries plus thousands of additional MW of solar PV. That's the 8,000+ MW mentioned as part of our earlier Evaluation of thermal power plant retirement section. A 100% proven clean technology option is untenable with today's technologies. That said, our analyses also repeatedly showed that

renewable development costs continue to decline, and in fact, solar PV has declined by more than 30% since we last studied these resource costs as part of our 2040 Clean Energy Plan.

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*The takeaway is, we need to find a complementary balance of proven clean technologies with the other resource strategies.*

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With significant reliance upon variable energy resources (VERs), strategies for both periods of abundant and insufficient energy supply will continue to be evaluated and mitigated to ensure sufficient operational flexibility. Part of this analysis will include further enhancements of forecasting technology for VERs as well as the control systems to manage the variability of their power output.

One of our zero carbon solutions will be energy storage. However, while today's storage technology is capable of addressing some of the short-term energy or variability needs, we'll need other solutions to ensure we can maintain reliability. Hydro resources will continue providing support, while being mindful of water supply, as well as environmental and licensing requirements. Continued exploration into the options of LDES will help us identify ways to maintain reliability and reach zero carbon emissions.

### **Initial reliability assessment**

We ensure the long-term ability to serve our customers under all conditions by following federal, state and NERC requirements for reliability and operations. For planning purposes, we plan to have the resource capability to meet load plus a 15% PRM. We conducted a series of studies to evaluate our ability to serve load with only proven clean technologies.

Currently, we rely on 1,380 MW of thermal generation (some imported) to serve load and ensure sufficient capacity reserves are available at all times. We evaluated the impact of removing all thermal generation during the summer peak. Our initial assessment indicated that without SMUD's internal thermal generation, our capability to serve load would be reduced by approximately 1,000 MW (equivalent to peak energy needs of 200,000 homes). In addition, our capability to import power could also be reduced by approximately 200 MW (or 10,000 homes). We also found an opportunity where adding 1,000 MW of proven clean technology at the location of our thermals could increase our load serving and import capability to the current levels, allowing us to continue meeting system demands and ensure reliability and adequacy for our customers. It's important to note that this 1,000 MW must be capable of delivering during summer peak to maintain the load serving capability and import capability required to meet the summer peak demand in year 2030.

## **Our flexible proven clean technology study informs our plan**

Proven clean technologies will be instrumental to achieving our zero carbon goal, especially because energy from solar and wind have become relatively inexpensive. We can easily imagine a world where we can buy enough energy from renewables to meet our load. The challenge is, too much of this energy will come when we do not need it, and conversely, not

enough when we do. The tools identified in this scenario analysis will help up address this challenge.

Energy storage looks like it will be the economic choice to shift this generation around so that, on average, we'll have enough energy. We can also build our portfolio with a variety of proven clean tech resources to take advantage of diversity benefits. For example, solar and wind are complementary with wind ramping up in the early evening as solar drops off. The scenario presented here is one of many plausible ways to achieve our objectives. We'll need to explore the reliability of the resources proposed in this Plan within the context of our plans and objectives for our thermal generators.

Under this study scenario, the portfolio build, in terms of nameplate capacity rating (the maximum instantaneous generation rating) is expected to represent nearly 6,400 MW.

**Table 11. Proven clean technology resource selection (nameplate capacity MW by 2030)**

Resource	Type	Location	Capacity (MW)
Solar PV	Customer	Sacramento	250-500
	Utility	Sacramento	1,100-1,500
	Utility	CAISO	100
On-Shore Wind	Utility	Solano	90
	Utility	CAISO and PNW	300-500
Off-Shore Wind	Utility	CAISO	-
Biomass/biogas	Utility	Sacramento	-
Geothermal	Utility	CAISO/NV	100-220
Battery Storage 4-hour or less	Customer	Sacramento	50-250
	Utility	Sacramento	700-1,100

### Scenario modeling results

Our studies found that thermal retooling has a dramatic positive impact on reliability and costs when compared to similar high-renewable energy scenarios. Without the retooled resources, we were only able to develop a resource portfolio that, on average, serve our retail sales with 80% carbon-free resources and reduce our GHG emissions 25% lower than our SD-9 goal (and adopted IRP) by 2030. When the retooling scenario is included, our zero carbon generation (including RPS-eligible renewables, hydro generation and thermal generation from RNG) is approximately 105% of our retail energy sales. RPS-eligible renewables is 90% of our retail sales, 30% more than the current state mandate is 60% in 2030.

This scenario requires a portfolio that generates more energy than we use, mostly excess solar that can be sold to neighboring utilities or curtailed. Our thermal generation has been reduced to only the hours vitally needed for reliability. Although we're currently assuming that the market will be able to absorb or purchase most of this generation from us, our modeling indicates that by 2030, over 15% of the solar PV generation we need to purchase must be curtailed due to the

lack of available buyers when the solar is generating. If batteries or alternative storage costs decline faster than expected, additional batteries may mitigate the need for curtailment.

To maintain reliability, our existing RNG contracts must be supplemented by other fuels. Assuming we continue using natural gas for this, our carbon footprint under this scenario is reduced by 90% from today's level. In terms of generation, natural gas comprises under 6% of the total generation we procure. In fact, we are expecting to curtail more solar power than is generated by natural gas in 2030. This does not mean that we can use the solar energy with today's proven clean technologies to displace our gas use. However, this does indicate that there are opportunities for new technologies, such as long-duration storage or renewable hydrogen production, that could absorb our excess solar energy and store it until we need it later in the year.

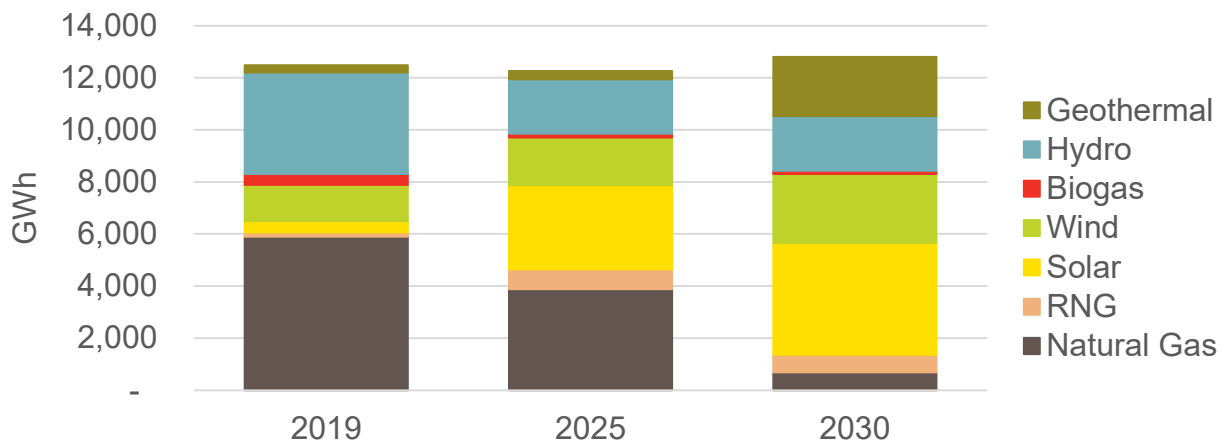
Our reliance on natural gas, compared to 2019, is reduced by nearly 90%. This is the result of retooling of our gas plants, limiting fuel use, and procuring proven clean technologies. In terms of capacity factor (a percentage measure how much a power plant is used), the thermal retooling scenario reduces the average capacity factor from 60% in 2019 to 21% in 2030. Of the 21% capacity factor, 8% is from RNG.

The resource mix that makes up our annual energy use is highly dependent on fluctuations in hydro availability. In 2019, our hydro resources performed above average and we were also able to procure additional zero carbon resources under short-term agreements from the Pacific Northwest. For our 2030 Zero Carbon Plan, we assumed hydro would generate according to average conditions and that we would not have long-term access to short-term agreements from the Pacific Northwest. Future analysis is needed to determine the resource mix needed under low hydro conditions and the impact to renewable curtailment during high hydro years. Additional zero carbon fuels will need to be procured and stored for use during low-hydro years to avoid the need to procure GHG emitting market power.

Figure 9 summarizes the annual generation from the modeling scenario compared to the latest generation data available, 2019. This generation mix includes generation used for retail sales, transmission and distribution losses, and sales to external utilities. This detail is consistent with our hourly carbon accounting methodology, which essentially requires that we eliminate all carbon emissions from our generation mix, whether sold into the market or used locally.

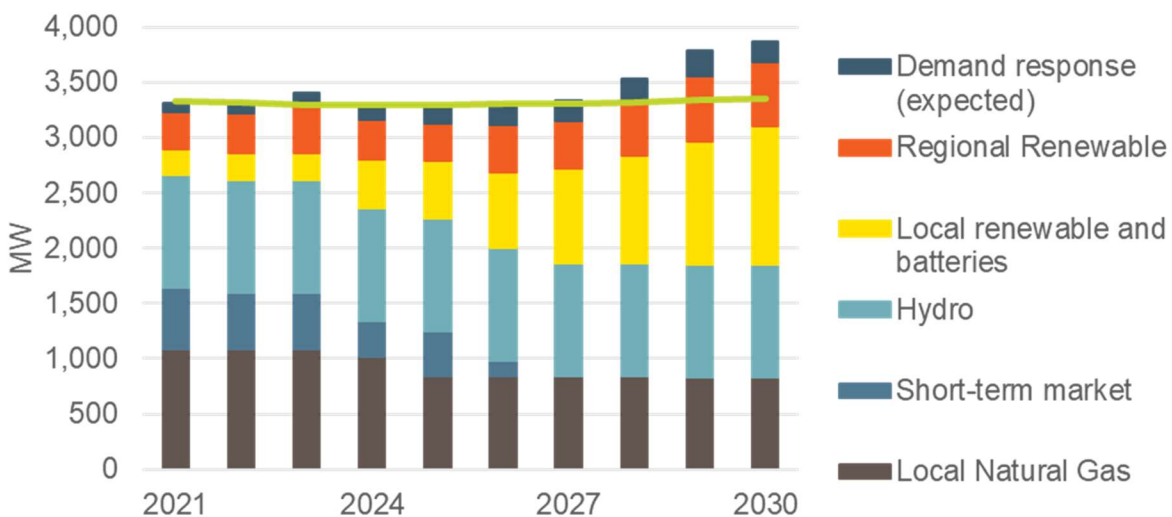
Additionally, this option preserves our power plants in the scenario where our solar is minimum, wind is low and we are in a drought. Even under these conditions, we have an obligation to meet customer electricity needs. If the weather persists, batteries will quickly get depleted and our dams will quickly empty.

**Figure 9. Annual generation scenario results compared to actual 2019**



The RESOLVE model selected 620 MW of 4-hour duration batteries, for a total of 724 MW of operating batteries in 2030. These batteries, with our flexible thermal and hydro system, will meet most reliability concerns longer than one hour in duration. Figure 10 shows the resource adequacy of the build compared to the PRM. However, intermittent resources, like solar and wind, can vary greatly over a few minutes (or even seconds), something which this model does not solve for.

**Figure 10. Resource adequacy and PRM**



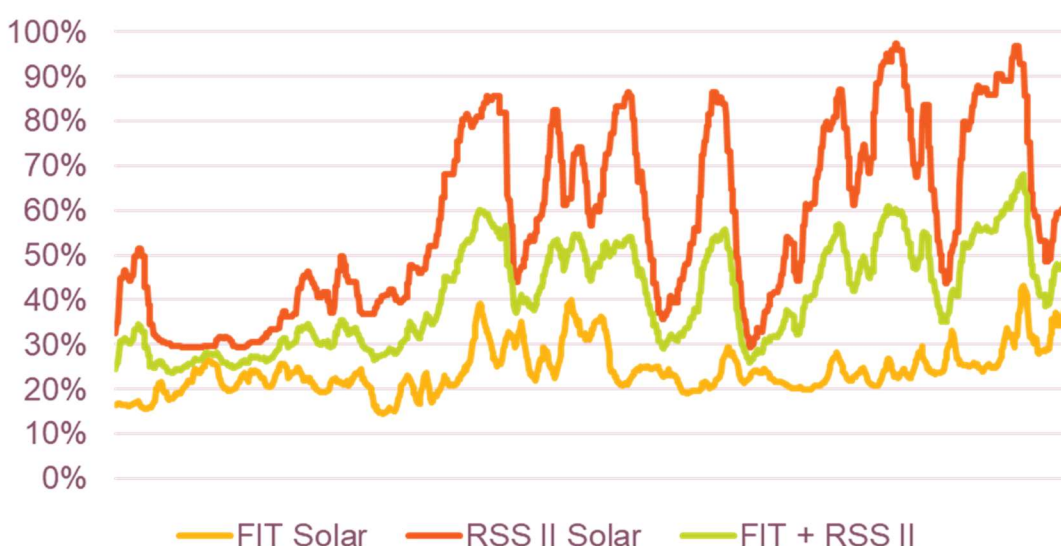
### Intra-hour variability

Earlier this year, we began operating our new 160 MW solar power plant at Rancho Seco. This project gave us an opportunity to observe real-time fluctuations on a cloudy day for a large local solar project. Figure 11 shows actual output over a one hour period for our Rancho Seco 2 (RS2) solar project (red line). During this hour, RS2 experienced numerous significant output fluctuations over several minutes with the maximum fluctuation of more than 55%. Each time

this occurs, other power plants must either generate more or less to accommodate these changes. As we build more solar within our service territory, we expect to see this occur more and at a greater magnitude.

To mitigate some of these intra-hour variations, we can ensure that there is enough geographic diversity, meaning projects are not located in close proximity. This allows for a time delay as clouds pass over each array. To demonstrate this, we also plotted our FIT projects, which is comprised of several smaller PV systems with some geographic diversity (yellow line). These projects, FIT with RS2, plotted together (green line), represents a possible scenario for solar in 2030, where there is good geographic diversity among most plants, but we have a couple of large projects grouped together. Under this scenario, we still expect to see regular intra-hour variability of 30% to 40% of the total rated capacity.

**Figure 11. RS2 and FIT projects output over one hour<sup>60</sup>**



Within our natural gas generation repurposing strategy, we identified the location of 400 MW of 1-hour battery storage. The intent is to further reduce the reliance on thermals for sub-hourly needs, such as the solar variation we expect on cloudy days. This, with the resource build identified by RESOLVE, results in a battery capacity of 1,124 MW by 2040. This capacity is on the low-end of what we expect to need to cover intra-hour variability. We'll need a more detailed analysis of the impacts of solar PV deployment on the larger system and the benefits of geographic diversity.

## Takeaway for evolving our Plan

Our transition away from natural gas generation with proven clean technologies is the foundation of our 2030 Zero Carbon Plan. These two strategies alone can eliminate 90% of our GHG emissions, possibly more with the development of new technologies. The final 10% will be

<sup>60</sup> Data represent actual metered output in February 2021 between 10:00-11:00 am

challenging to eliminate and will require leveraging partnerships and collaboration with local government, industry and academia as we explore new technologies and business models. These two strategies cannot meet the 2030 Clean Energy Vision on their own. Combined with advanced DER programs and successes in emerging technologies and business models, SMUD has charted a plausible and flexible pathway to being 100% carbon free.

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*Takeaway: Our 2030 carbon goal is achievable with flexible strategies and innovations in DERs, fuels and technology.*

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## New technology and business models strategy

### New technology and business models

- Identify and scale cost-effective DER solutions.
- Develop tools, programs and partnerships that align customer benefits with grid needs.
- Accelerate DER reliability and grid integration to establish operational confidence in advance of major thermal plant transitions.
- Enable DERs to become a standard grid service solution.
- Develop a customer-partner strategy for Virtual Power Plants (VPP).
- Continue providing support to our low-income customer-households and explore additional programs as our DER and electrification efforts evolve.

In the preceding sections, we shared a flexible strategy for a reimagined and highly flexible thermal fleet allowing for maximum integration of proven clean technologies, based on extensive studies. Using these strategies, we found that today's technologies can reduce about 90% of our carbon emissions while maintaining our commitment to providing reliable service to our customers. Also identified in these strategies are new utility-scale technologies and opportunities to reduce carbon further, addressing the remaining 10% of emissions. We've also found that additional DERs will play a critical role in reducing the remaining carbon emissions, provide capacity, help integrate renewables, lowering implementation costs and engaging our customers as partners in achieving zero carbon for the benefit of our entire region.

In the past DERs has mainly focused on rooftop solar and heating and cooling technologies, but as technology advances, this classification group now includes EVs, water heaters, solar panels with smart inverters, batteries and more. Customers are making significant investments in these technologies to enhance their lifestyles, reduce monthly expenses and reduce their carbon footprint. The opportunity for SMUD, our customers and Sacramento is to align the investments in technology and DERs with grid needs so the benefits of DERs can scale beyond the individual to have a community-level impact.

To help meet our aggressive carbon goals we'll need to embrace new technology options by 2030 in concert with the reimagined thermal fleet and robust proven clean technology buildout. To be successful, this will require large-scale customer adoption of DERs, high customer program engagement and advancement in the visibility and reliability of these technologies as a flexible resource. We simply can't do it alone and will need to establish partnerships to accelerate success. We'll focus on collaboration with local government, industry, academia and others to explore and pilot new technology and business models.

Finally, in considering the implementation of any new technology or business model, we must consider the impact on our communities, including the cost of service, environmental impacts and new clean energy job opportunities. We want our communities and customers to be first in line to realize the local job creation and clean energy benefits from our 2030 Zero Carbon Plan, which is why developing community partnerships is so important to our implementation.



## Customer-partner plan and other opportunities with DERs

DERs have benefits beyond generating power or reducing load. They can also empower our customers to take charge of their energy use and join us as partners on our carbon reduction journey. New DERs and technologies give us the opportunity to work directly with customers to maximize the benefits of these devices on SMUD's system.

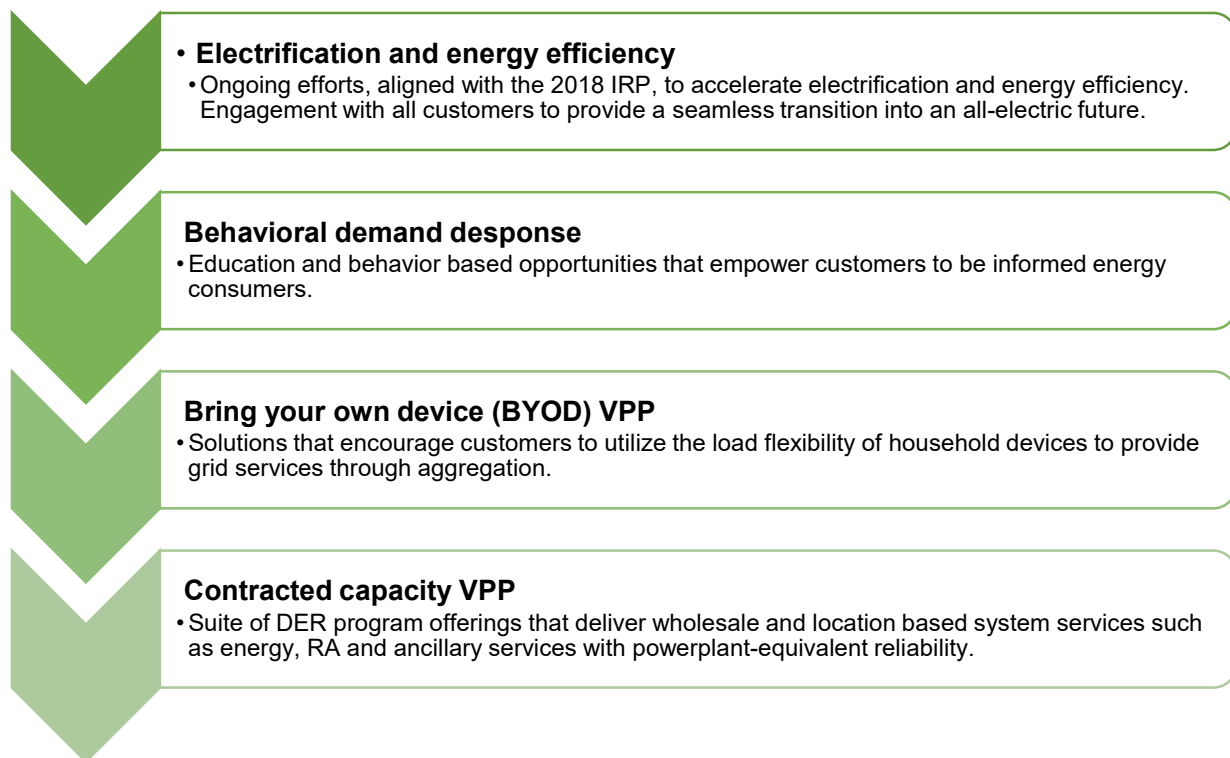
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*This strategy is our customer-partner plan, which brings SMUD and our customers together as active participants to study and learn from new technology and proactively reduce carbon.*

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Customer investment in DERs can create considerable opportunities to support the electrical grid, but most often helping our grid services is not the primary reason customers get DER-related devices. For example, smart thermostat settings can be managed by SMUD to control when energy is consumed from the grid, but customer comfort may be impacted. EV charging can be curtailed by SMUD to minimize grid impacts from coincident EV charging within a community, but the time required to charge the vehicle to full is increased. Accessing the potential of DERs requires balancing customer comfort and choice with economic benefit and reliable performance.

The new technology and business model strategy envisions a suite of solutions that engage with customers at a level they are comfortable with.



## **Electrification and energy efficiency**

One of the foundational elements of our 2030 Zero Carbon Plan is our continued focus on and investments in electrification. Recognizing the paramount importance of equity, we will also continue to prioritize under-resourced communities to help reduce the energy bill burdens of our low-income customers and ensure they aren't left shouldering the legacy costs of stranded fossil fuel infrastructure.

New all-electric program offerings that address lack of funds and other issues faced by renters will be critical to achieving our goal of helping low-income customers and under-resourced communities early. We'll expand our partnerships with local agencies and community-based organizations to raise awareness, bring in new sources of funds and accelerate adoption. In addition to bill savings, these electrification programs bring immediate public health benefits by reducing the significant indoor and outdoor air pollution from gas appliances that lack any emissions controls.

When considering electrification of transportation, scaling the charging infrastructure to meet fleet, workplace and multi-unit residential needs presents significant challenges. Large upfront investment is required for charging equipment and it'll take time for them to be used on a regular basis to get a return on investment. Additionally, transportation electrification may require costly upgrades to utility infrastructure.

To address these challenges, the Plan calls for ramping up our program investments in these spaces as well as engaging our business customers with streamlined solutions to overcome barriers, accelerate adoption and unlock access to electric transportation benefits. We'll similarly expand solutions for residential customers to make the switch to EVs simple and easy. We'll further collaborate with our regional partners to coordinate and align efforts for maximum impact. This Plan also includes workforce development to ensure equity in community benefit from the transition to electric transportation.

As more customers electrify their homes, buildings and vehicles, they'll add to Sacramento's overall electricity needs. Because much of this electrification will happen as technologies are advancing, we'll work to ensure flexible load while at the same time, minimize negative impacts by developing DER load flexibility programs. Investments in electrification will also provide a strong foundation for enabling integration of new renewable resources and displacing the need for additional utility-scale storage to accomplish this.

## **Behavioral demand response**

Customer and technology contributions supporting grid decarbonization are not limited to "smart devices" or cutting-edge technology. Significant benefits can come from educating customers on ways to use energy that supports higher levels of renewable generation integration. SMUD's recent transition to TOD rates for residential customers is an important step in this direction. The TOD rate provides daily guidance to customers about when electricity usage is more and less expensive. Customers can adapt their consumption patterns in ways that change the load profile of the community and helps reduce overall grid costs.

On an individual basis, behavioral demand response has a minimal impact. However, this approach is widely accessible and can allow all customers to participate regardless of technology or circumstance.

Small contributions like delaying a load of laundry or turning on a ceiling fan instead of turning down a thermostat can really add up at the community level. When the community is acting in a coordinated way and everyone is doing what they can, the small contributions of individuals have the ability to fundamentally support the grid.

### **Virtual power plants**

DERs provide an opportunity to enhance the capabilities of the existing distribution system, which can enable more cost-effective electrification of transport and buildings. As we explore new business models involving customer DERs, we'll assess their reliability and potential for cost-effective integration. We'll also consider our ability to scale these solutions in place of planned utility-scale proven clean technology investments, such as utility-scale solar and storage.

To build confidence in DERs as equivalent options to utility-scale resources, we'll need to test the operational capabilities and ensure the solutions are cost-competitive with other zero carbon alternatives. This will require proving our ability to layer dispatch to solve distribution capacity constraints simultaneously with economic optimization and reliability constraints from the bulk electric system.

### **Bring your own device VPP**

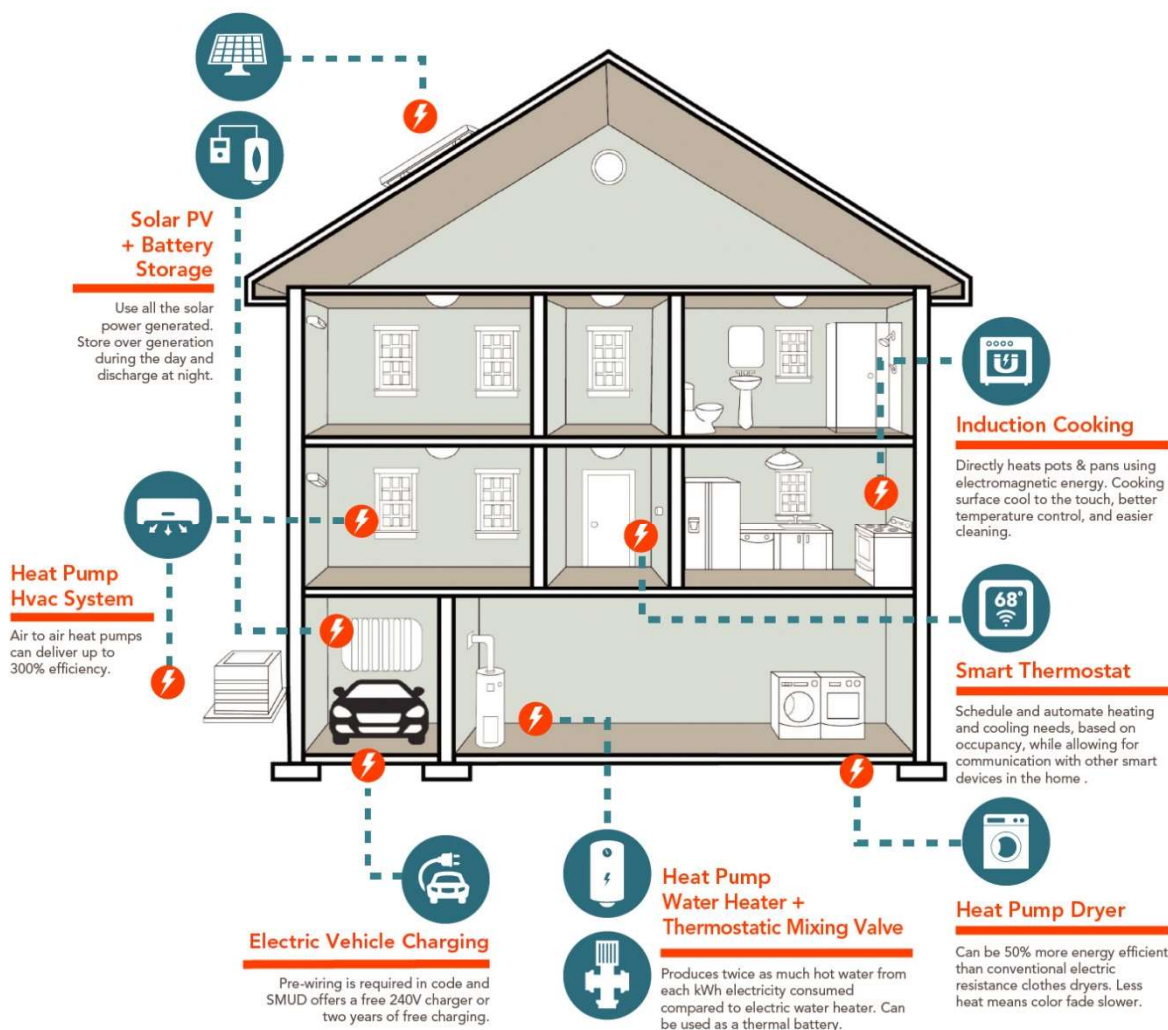
Early demand response programs depended on direct electricity load control of a customer's device, where one-way communication from the utility to the device was used to shed load. These programs were typically focused on air conditioning, but technology limitations meant it was difficult to understand the impact on individual customers. As a result, many customers experienced significant discomfort and would rightfully complain or request removal of a device when activated to support a grid reliability need on a hot day.

Since those early demand response programs, DER technology has evolved to cover a broader range of technologies capable of shifting load rather than simply curtailing it. These programs introduced two-way communication and the ability to manage events in aggregation.

More recently, utilities have started implementing "bring your own device" (BYOD) business models, which leverage the fact that customers are installing smart thermostats, water heaters and EV chargers that can be aggregated to provide energy management services to help meet grid needs.

In Sacramento, more than 85,000 smart thermostats have been installed to date, representing a significant existing potential resource. Thermostat-based programs allow standardized setbacks (e.g., 3 degrees setback from preferred setpoint), which ensures no customers are subjected to unexpected or significant discomfort. Aggregation is not limited to single types of technologies and DERs capable of participating in a BYOD VPP can now be found throughout the house.

Figure 12. Electrification and VPPs



One of the opportunities for this type of aggregation is the ability to leverage the customer's existing wi-fi connection to engage many of these devices. While dependence on this communication path can introduce connectivity risks, the overall cost is far lower than a dedicated cellular connection. This is one of the aspects of the reliability of this type of aggregation that needs to be proven out. A related challenge that we'll need to work on with partners is the fact that many lower income customers may lack both the technology and the basic internet access to be able to participate. Expanding access to both will be important from an equity standpoint.

The BYOD platform will use standardized communication and control interfaces to enable a broad range of technologies to participate. BYOD capacity will be used to provide load-shaping and other grid services as a complementary component to the reimagined thermal fleet.

## Solar + storage based VPP

There is significant growth in solar in our service territory and we expect this growth to continue through 2030, much of which we anticipate being paired with storage. Thus, this VPP will look to accelerate the cost-effective deployment of storage with solar and maximize the shared benefits of this technology to both the purchasing customer and to the community.

Not all DERs will be able to provide grid services at a level comparable to a traditional power plant. Thermostats are reliant on temperature, EVs move from location-to-location and energy storage can only provide a finite amount of energy before needing to recharge. However, higher levels of operational confidence will create higher levels of grid benefits. The solar + storage contracted capacity VPP focuses on engaging with leading technologies to provide the most reliable grid services possible from DERs.

Initially, the focus of this VPP will be on solar + storage since these devices are highly reliable and their primary application is energy services. In the future, the intent is to expand into a broader set of technologies including EVs and potential home or building energy management systems.

The platform will contract with aggregators for the dispatch rights to fleets of behind the meter solar + storage systems. DER capacity contracts will be intended to mirror the structure of traditional power plant contracts in addition to consider the unique attributes of DERs. The utilization of the resources may target local grid constraints, providing seasonal capacity, absorbing excess renewable generation or any other grid services needed to support reaching zero carbon while providing reliable energy. Demonstrating success with these approaches could lead to the displacement of hundreds of MWs of future utility-scale solar + storage investments and help lower the cost of shifting away from our existing thermal plant operations.

## DER progression plan

Including highly reliable load flexibility programs in our resource portfolio is key to the success of this strategy. These programs must perform similarly to a generator with performance characteristics that are known and can be planned against. This is even more critical if these programs participate in the electricity market. Realizing more value from DERs will allow the incremental value to be shared with customers through low rates and direct payments to customers for their participation. While inclusion of DERs in SMUD's grid operations can lead to immediate operations and maintenance (O&M) benefits, there may also be times when DER services are valued higher in energy markets such as CAISO.

Figure 13. DER progression plan



For DERs to provide the envisioned benefits, they need to transition from their current promising state to a level of high operational confidence. The goal is for DERs to be fully integrated and optimized as part of normal grid operations. The 2030 Zero Carbon Plan is investigating several technology opportunities to deliver these grid benefits. A key element of the plan is evaluating the programs, determining which elements are effective and scaling those up, while stepping back from components that are not cost effective.

The overall contribution of DERs is dependent upon the types of devices enrolled and the level of collaboration between SMUD and our customers. The result is a range of potential capacity that could be enrolled into load flexibility programs. The expected trajectory will be within that range. The capacity will increase to levels that ensure we establish operational confidence by 2024. As we transition beyond operational confidence, we expect DERs to be evaluated based on cost effectiveness and performance.

Table 12. DER development trajectory

Electrification & decarbonization	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Building electrification	Implementation & pilots			Scale up & expand						
Transportation electrification	Implementation & pilots			Scale up & expand						
Cumulative equivalent all-electric homes (thousands)	54	57	60	65	71	81	93	119	131	154
Cumulative electric vehicles (thousands)	23	29	39	51	70	94	127	170	224	288

DER technology	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy education & behavioral DR	Implementation & pilots			Consolidation of offerings		Behavioral DR operation				
BYOD VPP	Implementation & pilots			Scale up & expand		BYOD VPP operation				
Contracted capacity VPP	Implementation & pilots			Scale up & expand		Contracted Capacity VPP operation				
Zero Carbon Base Case Capacity (MW)	7	15	27	44	64	95	141	201	275	364
Expected Trajectory (MW)	8	26	51	80	To Be Determined Based on Cost Effectiveness.					
High DER Potential Capacity (MW)	22	74	164	254	384	529	724	919	1,114	1,325



## Key DER initiatives

### Rates & programs

As a community-owned-utility, SMUD's journey to a zero carbon future is a partnership with our customers and community. Utility investments in proven clean technologies and customer investments in DERs are mutually beneficial. Although proven clean technologies directly reduce carbon footprint, new customer technologies play a complementary role in the 2030 Clean Energy Vision through rate and program offerings. The following recent or new initiatives in partnership with customers are proposed as part of the 2030 Zero Carbon Plan:

### Energy efficiency & electrification

As part of this Plan, SMUD is further increasing its commitment to energy efficiency and electrification programs. By leveraging a carbon metric to measure outcomes, we're realigning our portfolio to maximize its climate benefit. Some of the new program models will introduce midstream marketing/incentives and turnkey "service" offerings so that customers can adopt or transition to new technologies with a lower level of effort. Examples include a revamp of SMUD's Express Energy Solutions and Complete Energy Solutions for building technologies, a turnkey EV charging infrastructure buildout service for commercial customers for fleet and employee workplace charging and a turnkey water heater replacement program that will provide a 1-to-2-day turnaround on a heat pump water heater to replace an existing gas water heater that has failed.

### Behavioral demand response - "Flex Alert" pilot

We'll pursue a behavioral demand response pilot project to evaluate load reduction opportunity using customer messaging. Participation will not be prescriptive of devices or require device automation. This is expected to be a one- to two-year project starting in 2021.

### BYOD load flexibility - Smart Energy Optimizer and PowerMinder

These projects are currently active. SolarEdge batteries are eligible for enrollment in Smart Energy Optimizer and GE and Rheem controllable heat pump water heaters are eligible for enrollment into PowerMinder. In both offerings, the aggregator optimizes device response to minimize utility supply-side energy and capacity costs. Customers are billed off their existing TOD rate while the device automation courtesy of the aggregators is only responsive on event days. The program terms and conditions allow for 120 events per year. Customers receive an upfront incentive and ongoing bill credit for sharing use with the utility on event days. More than a year of data is currently available from these pilots with the evaluation in progress for Smart Energy Optimizer and soon to begin for PowerMinder. Both programs address a portion of the research needs for the BYOD VPP program model/platform.

### BYOD load flexibility & Contracted Capacity VPP- multi-DERs pilot

This pilot focuses on comparing different rate and program groupings. More specifically it'll evaluate a critical peak pricing rate, dynamic pricing rate and an incentive-based aggregator-managed load shifting program (VPP). This project will encompass three DERs types – smart thermostats, EVs and residential battery storage in a BYOD fashion. A Request for Proposals is planned for 2021 targeting a system-wide scale that is relevant to economic operation of SMUD's electrical system (10s of MW). In addition to exploring rate and program models, data

will be collected to build confidence on the firmness of load reduction response. This project will address research needs from both the BYOD VPP program model/platform and the Contracted Capacity VPP program model/platform.

### **Contracted Capacity VPP – Solar + Storage VPP**

Programs for solar and battery storage systems will have to be designed with consideration of the successor rate to replace our NEM rate, which is expected to be an element in the upcoming rate process in 2021. Another VPP pilot is proposed, staggered after the multi-DERs pilot with more focused attention on the successor rate. This project will focus exclusively on the research needs of the Contracted Capacity VPP program model/platform with the intent of accelerating the benefits from behind the meter solar + storage.

### **Managed EV charging**

One of the primary interests in utility management of EV charging is to reduce the need for service transformer upgrades due to coincident EV charging when many people are charging at the same time. Service transformer protection allows SMUD to accommodate a greater number of EVs at a lower cost. For customers to enroll in such a program and continue participation, they need assurance that their EV range confidence is not impacted. This assurance may be via a guarantee of a full charge or some minimum rate of charge is provided to the vehicle. Such a program needs to be piloted to evaluate mutual benefit and scalability. Research projects should span both the BYOD VPP and contracted capacity VPP program models/platforms.

### **Smart inverters**

Under SMUD's Rule and Regulation 21<sup>61</sup> (also referred to as Rule 21), new solar interconnections are required to use smart inverters. One of the benefits to smart inverters is access to real time solar generation data which uncovers hidden behind-the-meter loads which is important for grid operations for switching and understanding contingency needs. Smart inverters also offer other functionality such as generation curtailment, reactive power and autonomous modes of operation. Further pathway analysis and modeling for the 2030 Zero Carbon Plan may uncover other priority use cases for smart inverters. Smart inverter utilization and program models are recommended for evaluation and eventual piloting.

### **Vehicle-to-grid**

Vehicle-to-grid (V2G) involves EV batteries capable of discharging energy to the grid. This can act as a low-cost alternative to stationary battery storage. It's estimated that at scale this technology could provide over 250 MW/400 MWh of energy storage. There are two industry barriers to this technology: 1) Warranted support today is limited to electric school buses only and 2) Vehicles and chargers are lacking hardware interoperability and compliance with utility interconnection standards.

Customer experience is a greater challenge for V2G. Customers will need assurance that utility draw/battery depletion does not impact vehicle use and range confidence. Beyond rate or incentive-based bill savings, in the future V2G could provide backup during outages, which would be an added benefit to customers. Instead of a pilot, smaller scale demonstrations are

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<sup>61</sup> <https://www.smud.org/en/Business-Solutions-and-Rebates/Interconnection-Information>.



proposed. Partnering with industry leaders in demonstrations will help accelerate technology development and create pull for utility interconnection standards and EV supply equipment (EVSE) interoperability to displace stationary storage investments.

Research projects should span both the BYOD VPP and Contracted Capacity VPP program models/platforms. School districts that benefit from CEC and CARB grants are aggressively converting their bus fleet to electric and already require some V2G compatibility. The incremental cost to operationalize V2G with these school districts presents a relatively small barrier compared to other segments.

### **Equitable access**

Bill savings from energy efficiency, building electrification and transportation electrification can benefit low-income customers and under-resourced communities that face socioeconomic challenges or are disproportionately burdened by pollution. The barriers for this segment being able to access energy efficiency, building electrification and transportation electrification are complex and individually unique. The barriers are often a combination of up-front technology cost, lack of information, lack of time or interest to invest in switching technology or a multiple party building change approval process such as tenant-property manager-owner. Variations to programs will need to be available to address this spectrum of challenges for this customer segment. Financing programs could play an important role in this portfolio of program offerings.

### **IT back office for customer-facing functionality**

For load flexibility programs to scale, they must be convenient for customer participation. This means customer-facing functions such as program enrollment, device registration, event messaging, event opt out selection and performance-based incentives/billing all need to be automated. In small scale pilots, many of these functions are manually processed. A road map for automating functionality with determination of what will be supplied by IT partners versus SMUD back office systems needs to be established.

### **Grid operations**

For the full value of load flexibility to be realized, it must be integrated with SMUD's operational procedures and tools. SMUD's implementation of our DERMS will be a significant step toward embedded DERs as part of normal grid operations. The DERMS will unleash economic value from aggregated DERs by displacing a portion of generator operation (namely utility battery storage) and energy market purchases and avoiding a portion of operational resources being reserved for transmission and distribution services or reliability.

## Financial strategy and options

### Financial strategy

- Explore opportunities for savings and cost reductions.
- Pursue grants, innovative financing and other funding opportunities.
- Cultivate new partnerships and collaborations.
- Connect with clean technology investors.

To maintain rate stability and access to credit markets, SMUD manages its finances to meet or exceed several target financial metrics. Some of the externally reported metrics include:

- **Days cash:** A measure of how much cash we have on hand to pay for ongoing expenses.
- **Fixed Charge Coverage Ratio:** A measure of how much cash comes in each year, compared to the principal and interest payments on debt.
- **Net Income:** SMUD's revenues less expenses.

Building the infrastructure, modifying current assets and acquiring the necessary resources to get to zero carbon will require a significant investment. It'll be important to continue meeting or exceeding our financial metric targets to ensure we have access to the capital needed to implement our 2030 Zero Carbon Plan, and protect against larger rate increases in the future.

Our financial strategy is based on taking action across many areas to help ensure that the goals of our 2030 Zero Carbon Plan can be achieved while keeping annual rate increases at or below the rate of inflation. This will require a mix of strategies, which are the focus of this section.

### Proposed portfolio rate impact

The proposed resource portfolio represents a significant investment over what was planned before our commitment to zero carbon by 2030. Relative to our 2040 Clean Energy Plan, annual commodity costs are expected to increase from about \$60M dollars in 2023 to more than \$450M in 2030.

In the short term, these increases are driven by additional wind and solar contracts and resource development. Longer term, increases are driven by large deployments of batteries and geothermal. In addition to these commodity costs, we're planning to make significant investments in DERs and in electrification for under-resourced communities. These investments will help achieve needed changes to patterns of energy usage, while ensuring costs are born equitably among all our customers.

When evaluating these costs, keep in mind the forecast includes expected cost levels for proven technologies which are uncertain and may ultimately be higher or lower than shown here. However, there are steps we can take to reduce costs below these expected levels, such as:

- Working with staff and vendors to minimize cost increases for recurring programs and services.

- Identifying opportunities to streamline processes and reduce costs.
- Creating innovative rate structures to partner with customers on distributed energy investments and incentivize use of technology that supports adoption of renewables.
- Capturing grant funding to offset costs for innovative zero carbon R&D projects, demonstration of new technology and integration of existing technologies.
- Identifying partnerships with energy suppliers, technology companies, governments and academic institutions to create new business models that share the costs equitably and lead to a healthy marketplace.
- Identifying alternative financing mechanisms that provide for partnership funding, grants and/or lower debt service and commodity costs.

Additionally, new technologies are expected to continue improving, and as they're adopted, price and performance will become more certain. Many may achieve significant cost improvements relative to current planned assets, and therefore lower the cost of the portfolio. However, the scale and timing of these improvements are unknown, and therefore are not currently modeled.

## Financial strategy

Our financial modeling results are preliminary and subject to change with fluctuations in commodity markets, changes in the economic landscape and advances in technology. As we progress towards our zero carbon goal, we'll continue to seek out opportunities to accelerate benefits by reducing commodity and borrowing costs, increasing operational efficiencies and optimizing partnership and grant funding strategies. Some strategies we may employ are:

- **Identifying priority projects, programs and technologies:** Prioritizing projects and programs across the enterprise, optimization of individual projects and monitoring technologies and costs to control spending.
- **Optimizing and seeking out partnership and investment opportunities:** Seeking Public Private Partnerships for acquiring or divesting of assets. Additionally, we can use our low cost of capital to finance projects that meet our risk profile at cheaper rates than may be included in modeled costs.
- **Identifying additional funding sources:** Seeking partnerships for grants and co-funding, as well as developing business models that leverage LCFS credits, U.S. Environmental Protection Agency (EPA) electric Renewable Identification Number and carbon credits.
- **Employing alternative financing structures and opportunities:** By employing alternative financing structures, such as renewable prepaids, we could potentially lower commodity costs. Additionally, if cost effective and available, we could use direct subsidy bonds such as Clean Renewable Energy Bonds and Qualified Energy Construction Bonds. We could also implement a grant capture policy and process to influence awarding agency budgets and align with SMUD projects. All funding opportunities available to SMUD for both zero carbon and non-zero carbon grants should be explored to create as much of a positive impact on SMUD's budget as possible.
- **Managing financial metrics:** Metrics can be adjusted to manage fluctuations in costs, and to smooth out rate impacts over time.

## Partnerships

Getting to zero carbon is a task that's larger than any single organization can achieve alone. As such, we're exploring ways to partner with the community at large to pool resources and mitigate risks as we explore new technologies and pursue large-scale projects. Community partners could include businesses, governments, academic institutions, financial/corporate institutions, native tribes, non-profit and philanthropic organizations, other utilities and investors. Each stakeholder brings new resources and perspectives to the challenge facing us, but together we're stronger and more capable of ushering in a zero carbon world.

We'll continue to explore opportunities to partner with others. These partnerships will likely be technology-specific. Some opportunities we're exploring include:

- **Partnering with other energy providers:** These partnerships could help facilitate construction of large-scale proven clean technology projects while achieve cost savings from economies of scale, as well as achieving regional decarbonization goals.
- **Partnering with manufacturers:** These partnerships could result in cutting-edge demonstration projects for technologies such as hydrogen fueled generators, biomass, biogas and biodiesel.
- **Enhancing investment in under-resourced communities:** By leveraging relationships with financial institutions and other businesses, we can work to enhance investment in under-resourced communities. Moreover, we can explore foundation and private investment funding to identify mission-related investments that support our goal of ensuring that no community is left behind in our 2030 Zero Carbon Plan. Examples of these possible funding sources include the Bill & Melinda Gates Foundation, William and Flora Hewlett Foundation and the MacArthur Foundation.

A key element of our partnership strategy is taking a more proactive stance towards identifying and developing potential partnerships. The "One Sacramento" initiative is a key example of this shift, bringing together local governments, academia, regional organizations, industry, under-resourced communities, healthcare organizations and investors. In the past, some of these groups have missed out on potential benefits and valuable partnership opportunities may have been overlooked. By creating a forum to discuss our shared goals, we can expand the array of potential partnerships, streamline planning processes and maximize the regional impact of expected new funding from stimulus and recovery packages and possible Green New Deal funding.

### One Sacramento regional partnership

As we decarbonize, we must comb the market for strategic partners that are focused on solving the same problems. Collaboration with government, environmental agencies and private organizations will expand ideas, tackle common barriers to accelerate timelines and co-invest in solutions to lower total decarbonization costs in a coordinated and efficient way. Our grid and customer base can be a platform for innovation, where key partners can gain access to end users and a network of industry and regional collaborators.

SMUD is in the unique position to be a powerful convenor in our region to align resources to maximize our decarbonization efforts. Specifically, we will lead the formation of a "One

Sacramento” regional initiative. This initiative will mobilize a coalition of customers, researchers, civic leaders and private sector partners to advance healthy, affordable and sustainable building, mobility and community solutions and to propose and implement demonstrations of what can be implemented in the Greater Sacramento region’s under-resourced communities, serving as a model for the rest of California and across the U.S.

SMUD maintains a unique leadership position in electrification for buildings and mobility, which are supported by our Sustainable Communities program, 2040 Energy Plan, recent climate emergency declaration and involvement with the California Mobility Center. We’ll work to prepare the greater Sacramento region to definitively respond to the expected Biden Administration Green New Deal stimulus funding, climate adaption-focused Federal Emergency Management Agency (FEMA) funding opportunities and other opportunities likely to encompass environmental justice, infrastructure to support decarbonization and resiliency and equitable deployment of clean tech to our customers. This intersection of community vision, funding, political will and evolving policies will likely bolster our ability to attract private investment from industry stakeholders.

Our “One Sacramento” initiative will work to attract funding and resources to equitably and affordably decarbonize the current environment and mobility services, and improve community health and resiliency in the Greater Sacramento region. The goal is to achieve zero carbon by 2030 while simultaneously advancing social equity and economic prosperity for the region.

### **Regional partnerships supporting economic mobility**

We also plan to expand partnership pilots to support the goals of our low-income and community engagement and Sustainable Communities programs. In expanding partnership pilots, we plan to:

- Leverage Sustainable Communities investments to identify opportunities to reach communities that are not already represented in the partnership portfolio and/or have limited representation.
- Incentivize current community partners to assist SMUD in achieving our 2030 Zero Carbon Plan through outreach, education, job training, etc.
- Implement additional training programs similar to Energy Careers Pathways that bring needed zero carbon job skills to under-resourced communities.

We’re also looking to establish additional partnerships to leverage federal funds to invest in under-resourced communities. With these funds, we intend to ensure that under-resourced communities will have access to the new technologies that will reduce GHG emissions without increasing their energy costs. We’ll also continue to work to incentivize companies to bring new companies to bring resources (e.g., new energy efficient businesses and technologies) to under-resourced communities. We’re learning about models that other communities are using that can be implemented in Sacramento to bring new energy technologies to under-resourced communities, adding new job opportunities and economic development opportunities for these communities.

We’ll leverage our involvement in the California Mobility Center as a conduit to potential innovation partners to accelerate managed charging and V2G technologies. It can also provide

a model that could be replicated to attract and build collaboration with stakeholders in the load flexibility and VPP domains.

SMUD must invest in training and hiring to ensure that strategic alignments are formed with well-vetted strategic partners and that ongoing exchange of mutual value is negotiated tactically in order to track and realize benefits for SMUD, our partners and our customers.

## Grant funding

We analyzed current and past grant opportunities to develop a forecast of grants that SMUD has a good chance of getting over the next five years. This analysis only includes grants that support the 2030 Zero Carbon Plan and primarily awarded by the Department of Energy (DOE) and CEC because those agencies would be the source for the majority of zero carbon grants. Based on our analysis, awarding agencies will provide the opportunity to capture more than \$150 million in grant funding over the next five years.

SMUD has extensive experience applying for and receiving grant funding that make innovative projects and customer programs possible. The recently completed Slab Creek Powerhouse grant started with the Power Generation team responding to a DOE request for information (RFI) and subsequent discussions with DOE on the need for this and the Iowa Hill Pumped Storage projects. Our most recent example is the awarding of \$750,000 from California's Department of Resources Recycling and Recovery grant for the North City Landfill where the Environmental Services team engaged with the state to allocate funding in alignment with one of our SMUD projects by educating them on our project needs and timeline. SMUD's Research and Development department has a Grant Acquisition Management team to respond to RFI's, engage with awarding agencies, vet opportunity announcements and respond to funding announcements with grant applications and proposals for emerging technology funding opportunities.

In a similar climate of grant funding to support presidential administration goals, the 2009 American Reinvestment and Recovery Act (ARRA) provided several significant grants for SMUD from 2010-2015. SMUD was awarded over \$150 million in federal funding for the SmartSacramento® project, the Home Performance Program through the California State Energy Program, Low Income Weatherization, Community Renewable Energy Deployment, Anatolia energy storage and the General Motors and Chrysler fleet grants. These projects were considered shovel ready and immediately generated jobs in the community. These projects moved SMUD toward zero carbon and have laid the foundation and given us the experience needed for our grant work as part of the 2030 Zero Carbon Plan.

SMUD has the potential to capture grants for the 2030 Zero Carbon Plan in two ways. First, the new Biden Administration has indicated that a new recovery act will be developed soon. Second, the DOE and CEC has a history of awarding grants for development, demonstration and research and development projects similar to those discussed in the partnership section of this plan. Research into grant awards shows the history of DOE grant funding to be stable and consistent across both the Obama and Trump Administrations. This trend is expected to continue under the Biden Administration.

To capture a similar level of grant awards with a new recovery act, we'll be ready to apply with shovel ready projects that align with the administration, DOE and CEC goals. Projects identified in the 2030 Zero Carbon Plan appear to align with these goals. Our successful capture of ARRA grants was related to SMUD's great reputation that enabled us to unite our community behind our ARRA projects such as SmartSacramento®. We've worked hard to maintain our positive reputation with the local community by educating and including local organizations in the ARRA projects. Our has built a reputation of successful implementation and grant management by placing the right amount of policy and procedures with the right controls. This ensured that the many audits we received resulted in positive reports to the awarding agencies and no give back of grant funds.

## **Approach**

In anticipation of our zero carbon grant needs, we have implemented new approaches to improve the efficiency of our internal grant identification and application process. This includes taking proactive steps to build relationships with new partners, such as establishing regional forums on shared goals, as well as internally structuring our processes and teams to have streamlined and coordinated approaches to managing grant opportunities. This will allow us to be prepared with quick, yet comprehensive, responses as new funding is announced. Because grant funding opportunities typically require a 30-to-45 day response, we must be ready with shovel ready projects defined, sub-recipients or other partners identified and vetted, and teams with the capability and capacity to build a winning proposal.

Building on this momentum, we can capture grant funding by implementing a grant capture team focused on our 2030 Zero Carbon Plan goals. This team will leverage our current capture process to do three things:

1. Leverage industry partnerships to help define and align agency funding with SMUD projects.
2. Leverage our Government Affairs team and external partners to advocate for zero carbon grant funding.



## Government affairs strategy

SMUD's 2030 Zero Carbon Plan will require close coordination across multiple agencies at all levels of government to enable near-term transformation. Governments are serious about addressing climate change, and their investment in SMUD's success will inform policies and pathways for other utilities to follow.

### Key objectives

Already, certain policy goals emerge as critical to the success of the 2030 Zero Carbon Plan. As specific projects and technical needs emerge, SMUD's advocacy team will be prepared to advance policies that support those changes and investments.

#### Partner with Governments on innovation

As the nation's leader in emissions reduction, SMUD will become the partner of choice for government investment in innovative research and commercialization of utility applications for emissions reductions, including public-private partnerships, grants and specific projects.

SMUD is well-positioned to partner with federal and state governments to receive funding for existing and planned carbon reduction projects, with an eye toward achieving shared goals. Many of the projects we'll pursue are likely to be transformative projects that have a public policy nexus, such as electrification of cars and buildings, reduced energy consumption through energy efficiency and demand response and developing additional zero emission generation resources and energy storage.

#### Accelerate beneficial transportation and building electrification

Building and transportation electrification projects have the ability to promote environmental equity, health and safety benefits for our customers as well as improve load factor in a cost-effective manner to ensure continued affordability. Central to this approach is achieving policy changes that encourage the electrification of buildings and transportation, which will also contribute to further emissions reductions in those sectors.

In 2018, Governor Brown signed an executive order calling for the state of California to be carbon neutral by 2045. Also that fall, the mayors of Sacramento and West Sacramento adopted a joint-city carbon zero goal by 2045. Both of these goals will require electrification of most if not all end uses in buildings and much of on-road transport. To achieve these levels of electrification, gas appliances will need to be phased out in retrofit applications by 2030, and for new construction, the state energy code will have to require all-electric buildings by 2026. On the transport side, phasing out the sale of gasoline or diesel vehicles will need to be done by 2035. These types of policies will require many years of education and promotion of the technologies and their benefits to reach acceptance, both amongst the public and policymakers.



## **Improve technology standards and permitting processes for infrastructure**

Robust efficiency standards must play a role in ensuring the power SMUD generates is not going to waste. After years of inaction on standards at the federal level, new requirements are likely to be proposed under the new administration. SMUD will support strong standards and engage on requirements that impact grid-enabled devices.

As SMUD identifies and begins construction on key projects required to affect the transition to zero carbon, policy support for deployment of renewable generation, storage technology and transmission infrastructure will also be crucial. This may come in the form of streamlined permitting processes, monetizing credit for early action in broader emissions reductions regimes or reducing unintended barriers to deployment.

## **Strategies**

SMUD's objectives are ambitious, so our approach must be determined and focused. The decade of transformation has already begun, and SMUD is vaulting to the forefront of change by building strong relationships with elected officials and decision-makers who will help us succeed.

### **Educate policymakers**

Our first order of business is to tell our key government stakeholders and external partnerships about our goal and strategy for achieving it, which is already underway. In addition to introducing our 2030 Zero Carbon Plan to policymakers in 2021, we'll inform coalition partners, trade associations, environmental advocates and the public about our plans to achieve zero carbon by 2030.

We'll develop an outreach plan for direct, regular and consistent interaction with decision-makers and influencers, utilizing grass-roots mobilization to engage a strong base of supporters and organizational allies to encourage change. Through this Plan, we'll promote our work to key federal agencies that can deliver funding for demonstration and deployment projects aimed at deep decarbonization.

Working across departments, we'll develop and disseminate consistent company-wide talking points and issue papers, provide training on critical issues and execute a strategic campaign to raise awareness of the 2030 Zero Carbon Plan and associated policy initiatives.

### **Promote beneficial regulation**

We'll be highly visible as a champion of policy efforts to reduce carbon emissions, including drawing upon and sponsoring studies, offering technical support and feedback for policy development and partnering with government agencies on physical projects. We'll endorse and support policy proposals that facilitate utility actions to reduce emissions, including government research and development programs in emerging technologies like power-to-gas technology, hydrogen and methane, long-duration batteries and compressed air storage.

We'll identify, evaluate and maintain a list of beneficial programs, projects, rulemakings and legislation that enhances and/or facilitates the clean energy transition, with the highest support for those efforts that specifically facilitate our efforts. We'll work to raise awareness of, and

support for, these initiatives through briefings, social media, correspondence and other activities.

We'll also work with policymakers to provide constructive feedback on legislation and regulations, leveraging our technical expertise and engineering capabilities. We'll work individually and through coalitions and associations to shape climate and clean energy efforts, including financial support for and participation in organizations dedicated to clean energy transformation.

### **Actively work toward reforming outdated policy barriers**

We'll proactively identify barriers to the clean energy transition that may be embedded in existing law, and work for their reform. We'll call for pragmatic changes to existing policies that inhibit a speedy transition to clean energy, such as permitting processes and requirements that do not appropriately balance the urgency of climate change against other objectives.

We'll continue to cultivate policy support for necessary reform of existing law when it becomes evident that such policy is an impediment to the 2030 Zero Carbon Plan.

In addition, we'll seek to reframe narratives from our industry and others that discourage ambitious goals or entrench the status quo. SMUD will be an advocate within advocacy groups, and counter opposition or indifference within those organizations. We'll be a voice for what's possible and will challenge assertions that policies should protect existing industries at the expense of emissions reductions.

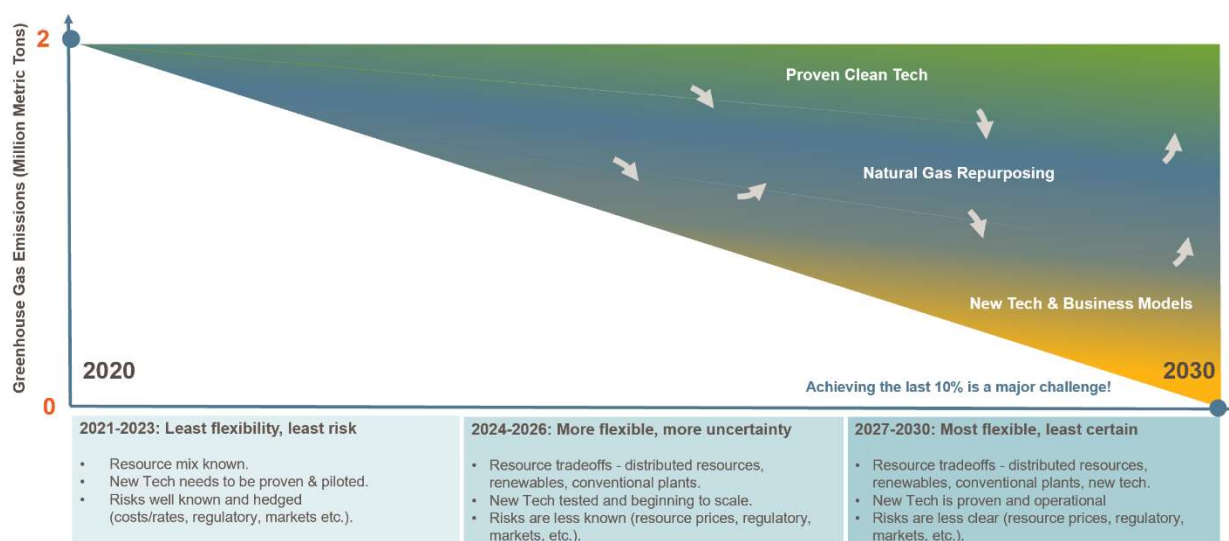
## Conclusion

One of the defining features of our 2030 Zero Carbon Plan is that we're seeking to reduce emissions associated with all our electricity generation, not just our retail sales emissions. This exceeds the scope and timing of California's 2045 zero emissions goal as well as virtually all United States utility targets. Our all-encompassing goal will require removing natural gas from our portfolio, which most utilities identify as needed for reliability.

Our strategies support our core values, including maintaining reliability and affordable rates. We'll work with all our communities to ensure that Plan benefits sensitive groups and our under-resourced communities and that it's affordable for all. We'll use a thoughtful, data-based approach to study the reliability of these options before proceeding.

We've identified a broad and flexible road map to get us to zero carbon by 2030. This Plan will, and must, remain flexible to be successful. As we implement one element, we'll need to reassess the system, technology landscape and customer preferences. Clean energy technologies are evolving quickly, and we must ensure we're providing our community with the right solutions over the next decade and beyond.

**Figure 14. Illustrative flexible pathway to zero carbon**



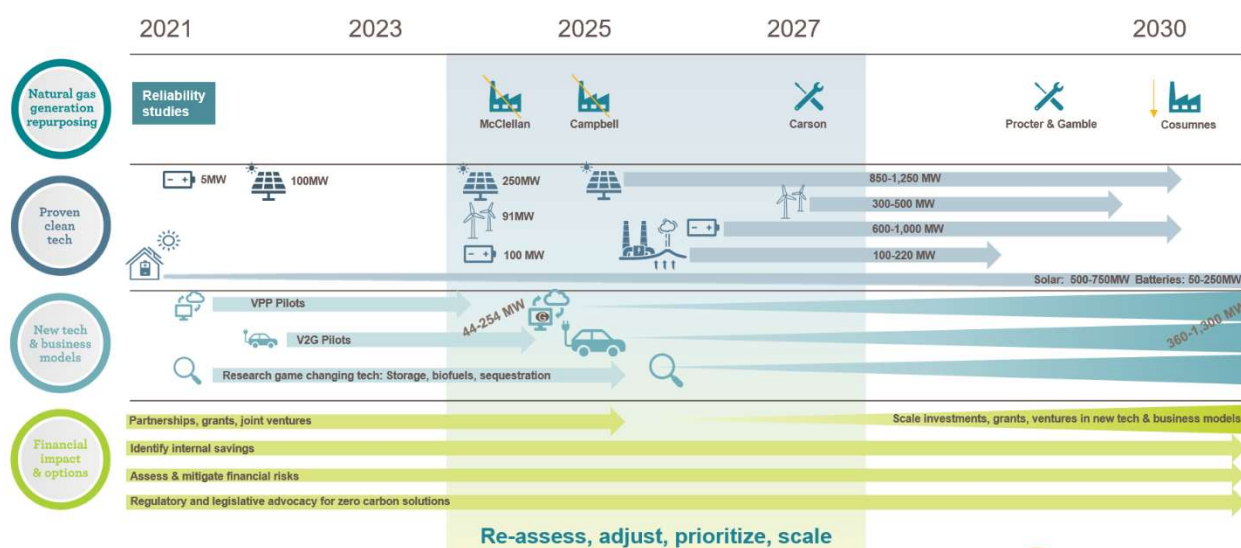
## Flexible pathway to decarbonization

What we have discussed in previous sections is not a rigid plan of action, but rather an exploration of scenarios that have and will continue to inform our strategy discussion as elements of our plan become more concrete. As part of our strategy discussion, we modeled a variety of scenarios, each employing different tools available to SMUD as we continue our journey toward zero carbon. As we continue down this journey, we must approach each decision point decisively and educated with the best available information. Through the

implementation of this plan, we'll define our pathway and create a comprehensive resource portfolio that, by 2030, will allow us to reach zero carbon.

There is no single portfolio that will help us achieve zero carbon and it will not be a one-time optimization task. Instead, it will be up to us to create a resource mix that balances a variety of sometimes evolving objectives – cost, reliability needs and land-use, among others. We'll revisit these tools often as our priorities evolve and new technologies or business models become commercially available. Figure 15 is illustrative and suggests several possible ways that SMUD could balance the various tools we have at our disposal to reach zero carbon by 2030.

**Figure 15. Possible ways to reach zero carbon by 2030**



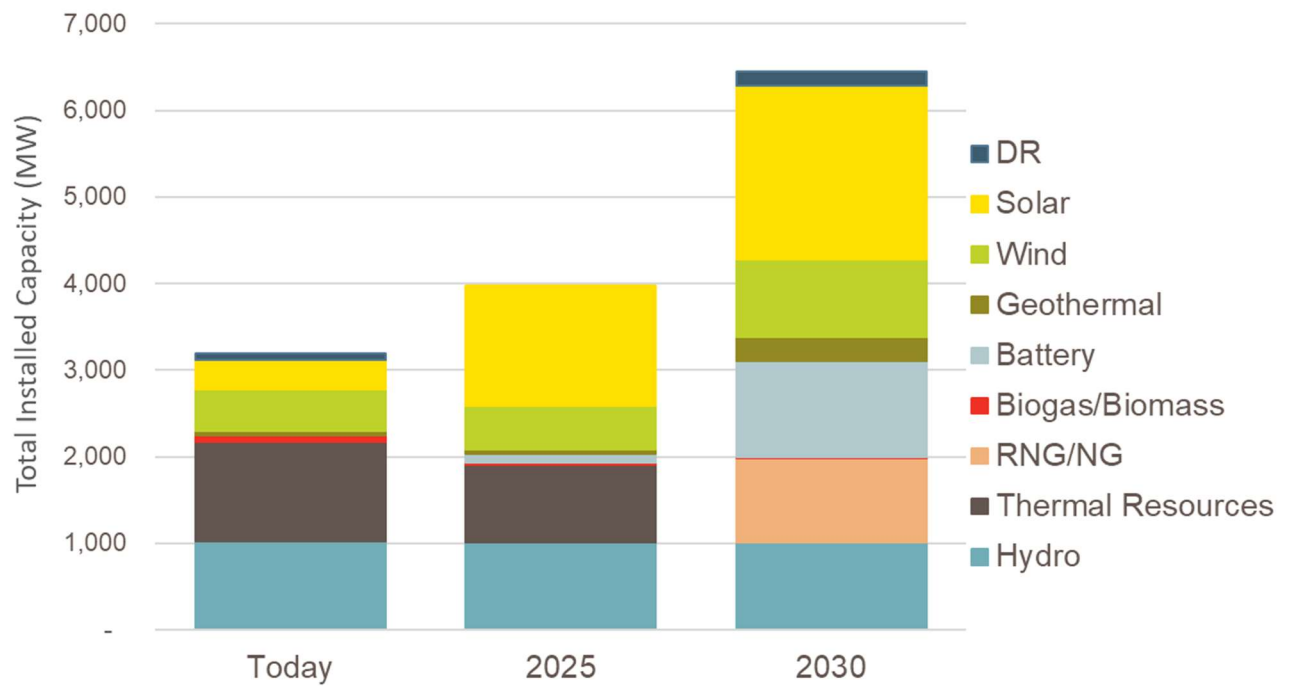
## One view of our road map to 2030

While the future is far from certain, we know our power supply in 2030 will be significantly different than it is today. More options will be available, and while we don't know exactly which ones will be in place in 2030 and to what extent, this Plan is the foundation that will get us to zero carbon, with the flexibility to adjust as circumstances change.

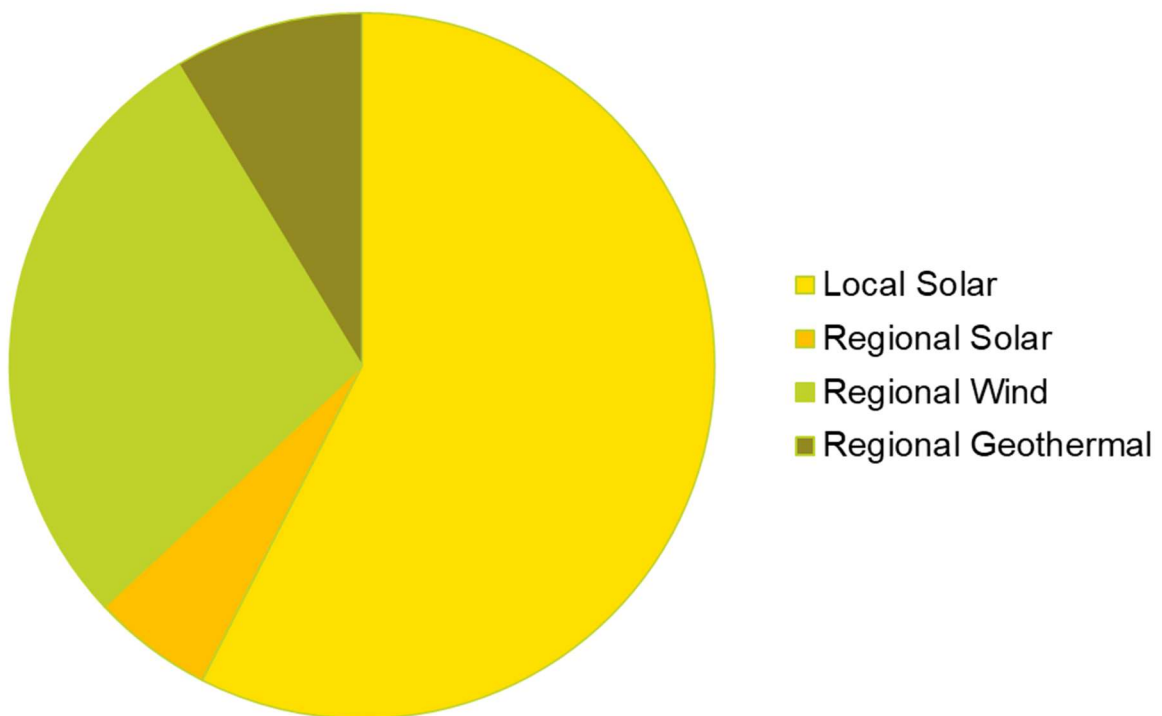
The Plan assumes our generating capacity will increase. Under today's technology assumptions, our portfolio, in terms of nameplate capacity rating (the maximum instantaneous generation rating), is expected to grow from around 3,500 MW today (including short-term market capacity) to nearly 6,400 MW in 2030.

Figure 16 shows the capacity break out compared with today. Figure 17 shows one potential breakout of where our renewable resources could be located (local and remote).

**Figure 16. 2030 Zero Carbon Plan**



**Figure 17. Where might our new renewables be located?**

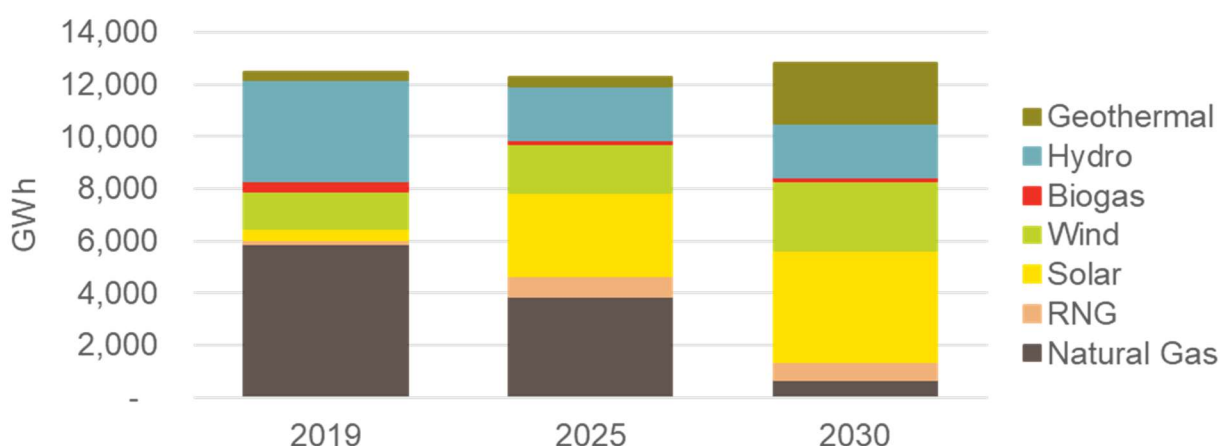


In terms of generation, natural gas comprises under 6% of the total generation. In fact, we expect to curtail more solar power (over 15%) than is generated by natural gas in 2030 in this model. While this does not mean that with today's proven clean technologies we can use the solar energy to displace our thermal assets. It does suggest that there are opportunities for new technologies, such as long-duration storage or renewable hydrogen production, that could absorb our excess solar energy and store it until we need it later in the year.

As compared to 2019, our reliance on natural gas is reduced by nearly 90%. This is mostly due to the retooling of our gas plants to operate as peakers. When used as such under the thermal retooling scenario, the average capacity factor drops from 60% in 2019 to 21% in 2030. Of the 21% capacity factor, 8% is from RNG.

The resource mix that makes up our annual energy use is highly dependent on fluctuations in hydro availability. In 2019, our hydro resource performed above average and we were also able to procure additional zero carbon resources under short-term agreements from the Pacific Northwest. For our 2030 Zero Carbon Plan, we assumed that hydro would generate under average conditions and that we would not have long-term access to short-term agreements from the Pacific Northwest. See Figure 18 for the annual generation break down by technology. Future analysis is needed to determine the resource mix needed under low-hydro conditions and the impact to renewable curtailment during high hydro years.

**Figure 18. Annual generation for 2019 and 2030**



### Customer-partnerships: The road to VPP

Adoption and flexibility of DERs are gaining momentum and show promise as a valuable resource in our 2030 Zero Carbon Plan. Advancements in technology and declining costs are laying the foundation for promising business models that will provide customers with an opportunity to participating in resource programs and share in the benefits. Our building and vehicle electrification efforts are foundational elements to community-wide carbon reductions. Additionally, rooftop solar continues to decline in cost and batteries are reaching market parity with other capacity resources, creating an attractive financial proposition for customers interested in these types of investments. Taken together, we see great potential for technology aggregation to create a VPP.

The capabilities of such a configuration remains to be tested and refined to optimize overall performance and customer experience. We expect that aggregated DERs will have potential and capability to mimic the operations of up to 490 peak MW of the equivalent thermal power plant. The actual resource potential is uncertain until we develop the infrastructure, increase customer adoption of smart technologies and transition local vehicle sales to EVs.

## Action plan and risk mitigation strategy

Based on extensive studies, we concluded there is a feasible pathway to achieve zero carbon by 2030, however, there are a number of unknowns and risks that we must be prepared to mitigate. We addressed many of these in the preceding sections, such as development risk, technology uncertainty and cost controls. Other challenges are likely to arise during implementation. Our flexible pathway allows for many mitigation efforts and complementary actions that we can undertake to achieve our goal on time.

Our plan of measurable actions is divided into near-term and mid-term. Long-term actions will be developed as we complete the near-term actions and update the plan in our mid-term review.

Below are our short- and medium-term action plans, subject to change based on new information, economics and technology readiness. These are the areas we'll focus on through March 2024, with ongoing updates to this Plan based on progress and factors that have changed since this Plan was created.

### 2030 Zero Carbon Action Plan

Near term action items, to be completed by March 31, 2022	
Implement plan for the Natural Gas Generator Repurposing Strategy, including	<ul style="list-style-type: none"><li>• Feasibility study of the reliability, economics and environmental impacts, focusing on solutions for McClellan and Campbell.</li><li>• Community outreach, communication and engagement inclusive of all segments.</li><li>• Study of new complementary utility-scale technologies, fuels and options.</li></ul>
Implement plan for the Proven Clean Technology Strategy, including:	<ul style="list-style-type: none"><li>• Schedule and options for developing and deploying new resources.</li><li>• Conduct locational analysis, system impact study and economic valuation and solicit counterparty offers.</li><li>• Study strategic new technology options complementing the Natural Gas Generator Repurposing Strategy.</li><li>• Explore delivery options for out-of-area renewables.</li><li>• Develop and issue competitive solicitation for new proven clean technology projects.</li></ul>
Implement plan for New Technology and Business Models Strategy, including:	<ul style="list-style-type: none"><li>• Perform information technology system upgrades to enable DERs and VPPs.</li><li>• Include DERs in operations, distribution and grid planning processes.</li><li>• Launch new customer-partner pilot programs for VPP Involving thermostats, EVs, rooftop solar and batteries.</li><li>• Launch pilots for behavioral demand response "Flex Alert", EV managed charging and V2G demonstrations.</li><li>• Quantify co-benefits in healthcare, mass transit, construction, internet service providers, etc.</li></ul>



Near term action items, to be completed by March 31, 2022
<p>Evaluate the 2030 Zero Carbon Plan for NERC Reliability Standards, system adequacy requirements, operational reliability requirements, and new reliability services contributions.</p> <ul style="list-style-type: none"> <li>• Transmission system studies are completed, and a mitigation strategy is proposed for any identified violations.</li> <li>• Operational recommendations for mitigating intra-hour variability.</li> <li>• Data on expected grid reliability contribution based on New Technology and Business Strategy modeling.</li> </ul>
<p>Perform reliability assessments</p> <ul style="list-style-type: none"> <li>• Evaluate operational reliability requirements to manage the variability of solar and wind generation.</li> <li>• Evaluate grid reliability services contribution from VPPs, DERs, demand response and load flexibility.</li> <li>• Perform detailed studies of sub-transmission system impacts from the re-tooling of the Carson Ice generation plant.</li> </ul>
<p>Set internal goals for operational efficiencies needed to manage risks to rate impacts.</p>
<p>Organize grant capture team to proactively seek opportunities for funding partnerships and research with manufacturers, vendors, government agencies, utilities and research institutions.</p>
<p>Engage government, agencies and policy makers</p> <ul style="list-style-type: none"> <li>• Brief policymakers on the 2030 Zero Carbon Plan.</li> <li>• Advocate for and support electrification policies</li> <li>• Support cities' and county General Plans and Climate Action Plans</li> <li>• Connect with federal agencies and policy makers on climate action and our 2030 Zero Carbon Plan</li> </ul>
<p>Identify new workforce skills needed to support zero carbon technologies. Determine if these are net new jobs or upskilling of existing workforce. Careers can span zero emission vehicles, building electrification, etc.</p>
<p>Develop and implement a comprehensive regional communications, marketing, outreach and educational effort.</p>

Medium term action items, to be completed by March 31, 2024
<p>Update and implement Natural Gas Generator Repurposing Strategy, including</p> <ul style="list-style-type: none"> <li>• Finalize solution for McClellan and Campbell replacement.</li> <li>• Conduct comprehensive reliability analysis and retooling (or retirement) plan for each thermal generator location and update retooling plan annually as necessary.</li> <li>• Update our research and development plan for new large-scale technologies. Seek expertise and opportunities to partner, research and fund projects.</li> </ul>
<p>Update and implement the Proven Clean Technology Strategy, including:</p> <ul style="list-style-type: none"> <li>• Identify and develop the next set of renewable resources and storage needs locally and regionally with plausible delivery options.</li> <li>• Identify and solicit additional clean tech resources.</li> <li>• Update feasibility study of the reliability, economics and environmental impacts, focusing on solutions for retooling Carson and Proctor &amp; Gamble.</li> </ul>

Medium term action items, to be completed by March 31, 2024
<p>Update and implement plan for New Technology and Business Models Strategy, including:</p> <ul style="list-style-type: none"> <li>• Accomplish planned system upgrade.</li> <li>• Accomplish future rates development</li> <li>• Continue to refine new programs and pilots and nurture partnership &amp; grant opportunities. Collaborate with utility peers to support common interfaces to technology and program innovation.</li> </ul>
<p>Continue to study and monitor the impact of the plan on both distribution and transmission system. Perform transmission reliability studies to comply with the NERC reliability standards, load serving capability and import capability studies.</p>
<p>Continue to evaluate VER impact on operational practices and system conditions.</p>
<p>Set 2022 budget and 2022/23 rate increases with initial plan limits. Determine optimal borrowing strategy to meet plan and make necessary adjustments as part of the biennial Rate Case process.</p>
<p>Focus project outreach on residents within the recommended radius of each thermal plant based on key findings from scope study and partner feedback Identify community partners to develop training programs (upskill or entry-level) to support new zero carbon technologies. Develop strategies to attract (marketing, career pathways etc.) under-resourced communities to these stable, economically mobile careers.</p>
<p>State-level Actions:</p> <ul style="list-style-type: none"> <li>• Maximize CARB Cap-and-Trade allowances.</li> <li>• Protect LCFS revenue.</li> <li>• Support agency implementation of Governor’s Executive Order on EV-only sales.</li> <li>• Protect against legislation that creates barriers to implementing our 2030 Zero Carbon Plan, such as costly mandates and funding of non-zero carbon transportation fuels.</li> <li>• Advocate for legislation that aligns with zero carbon priorities, including transportation, building electrification and zero emission technology funding and research.</li> </ul>
<p>Regional and local activities:</p> <ul style="list-style-type: none"> <li>• RMI SMAQMD NOx standards campaign.</li> <li>• City of Sacramento Electrification Ordinance adoption and support.</li> <li>• City of Sacramento Climate Action Workplan.</li> <li>• Building electrification and EV permit data and streamlining.</li> <li>• City of Sacramento EV Blueprint Phase II Implementation.</li> </ul>

## Risks and mitigation strategy

As was the case with our 2040 Clean Energy Plan adopted by the Board in 2018, any long-term market outlook carries significant uncertainty and there are many factors that could cause us to re-evaluate and adjust our plans by 2030. For example, a downturn in the economy may slow load growth as well as customers’ willingness to invest in new technologies or programs intended to help meet our goals. Similarly, if costs for battery storage, solar PV or other emerging technologies decline faster than currently expected, there may be cause for SMUD to accelerate investments in these technologies or add them to the solutions to meet the 2030 goals.

## Key risks

We have identified the following risks and developed a high-level risk mitigation strategy to that will allow for us to adapt as challenges occur.

## Technology

Even proven clean technologies may experience negative impacts to performance due to factors such as the impacts from climate change on weather or other long-term changes beyond 2030 in load or customer behavior. Given this, knowing which technology will prevail in cost and performance is impossible.

Many utilities are wary of defining an inflexible strategy too soon and limiting their options. They don't want to presume the best technology before absolutely necessary. SMUD's carbon reduction goal is the most ambitious goal of any large utility in the U.S., so these considerations are of even greater importance for us. Some utilities are choosing to defer decision-making, while others approach their goals through investments in research and development but given each utility's small size relative to the market, it's difficult to have a meaningful impact. However, paralyzing indecision is also untenable and costly.

Our strategy for overcoming these hurdles is to embrace flexible planning that regularly assesses risks and opportunities, new technology advancements and applications of new business models that advance SMUD toward zero carbon.

## Climate change

In recent years climate scientists have emphasized the interrelated nature of cascading and compound events, such as years of drought followed by extreme precipitation leading to excessive vegetation, wildfire and then mud slides resulting from new storms. As climate changes progress, California's already variable climate is expected to experience even greater extremes in the years to come. SMUD's infrastructure, our outdoor employees and our customers are vulnerable to these conditions, which will likely demand system hardening and other changes to adapt to shifts in electrical demand and working conditions.

As SMUD prepares to make significant additional investments in our zero carbon pathway, we must also consider how a host of new technologies and approaches to supplying electricity could be enhanced or constrained by the projected changes in the climate, both within our region and throughout the western United States. As such, each proposed investment in new technology or service delivery included in the 2030 Zero Carbon Plan must undergo customized evaluation or stress testing with consideration of the climate projections that could impact the end user and the operational conditions, performance and the life of the asset or measure.

Additional, solution-specific and location-specific climate research will be conducted as the plan is further developed. This research must encompass not only conditions anticipated in Sacramento County but in all the regions where we may source electricity, critical equipment and supplies. And we can act on new findings related to regional urban heat island<sup>62</sup> and

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<sup>62</sup> <https://climatereadiness.info/uhi-project/>.

actually reduce ambient temperatures by investing in cool roofs, cool pavements and walls and urban greening in targeted areas.

Facilitating the awareness and incorporation of projected climate changes into SMUD's research, planning, design, operations and emergency response efforts is essential to prolong the life of our non-emitting resources, avoid additional stranded investments, increase the likelihood of new technology performance to expectations and to minimize unnecessary cost to our customers. It'll demand broader engagement throughout SMUD's management and the organization than has been the case in the past, to better connect operational knowledge with information about likely future conditions that will continue to shift over time. Implementation of the California Public Utility Commission's recent decisions<sup>63</sup> related to climate adaptation, which specify cross-functional and executive involvement in addition to specific data and planning criteria, will be an important step in this direction. This is also an area of great potential for collaboration throughout the region to build or evolve social and physical infrastructure that can address immediate needs and help us prepare for the future.

## **Regulatory**

California's environmental regulations are continually evolving as the state pursues its low carbon goals, which in turn could have a significant impact on our costs of generating and distributing power. For example, RPS goals through 2030 have been revised higher to 60% by SB 100 just after passage of an increase in RPS from 33% to 50% by 2030, set under SB350 in 2015. Currently, numerous laws have been introduced to further require decarbonization of electricity. While we support these laws in general, we'll need to watch closely as new limitations are imposed and our options are restricted.

For us to reach our 2030 goal, we will continue to target programs and infrastructure supporting electric transportation and buildings. We must also be working on the leading edge of research, experimenting and deploying new technologies and customer programs. Although we anticipate regulatory changes to support electrification, this will take time to implement.

## **Development and land-use concerns**

Our 2030 Zero Carbon Plan relies heavily on proven clean technologies to decarbonize our energy system. Currently, the most economical resources are wind and solar. These systems have large geographic footprints that require thoughtful development strategies, including alternative technologies, like rooftop solar and bioenergy. However, the local potential for other technologies is highly limited in the Sacramento region.

## **Economics**

Solar and wind costs have steadily decreased in recent years to historic lows. These resource costs are susceptible to land value, incentive expiration (investment tax credit/production tax credit), political climate, environmental regulations and the cost of material to create them. Resources such as battery storage used to balance renewables are projected to decrease significantly over the next 10 years, which would allow for lower cost deployment of these valuable balancing resources when needed.

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<sup>63</sup> <https://www.cpuc.ca.gov/climatechangeadaptation/>.

Economic downturns, pandemics or factors that slow growth in regional jobs and population could change relative costs of goods and services that could warrant adjustments of our plan. Additionally, higher than forecasted market prices could create upward pressure on costs and rate projections and dampen the adoption of transportation and building electrification.

### Infrastructure planning

We completed preliminary studies assessing the impact that removing all of our thermal generation during summer peak would have on the load serving capability and import capability for our transmission grid. The study results indicate that without SMUD's internal thermal generation, our capability to serve load would be reduced by approximately 1,000 MW (equivalent to 200,000 homes in the middle of summer). In addition, our capability to import power would also be reduced by approximately 200 MW (or 10,000 homes). The studies also indicate that 1,000 MW of renewable generation would need to be added to SMUD's transmission system at **specific locations** to return our load serving capability and import capability to the current levels.

When the 2030 Zero Carbon Plan is refined, additional studies will be performed to ensure the adequacy and reliability of SMUD's transmission and distribution systems.

### Reliability

As our portfolio includes more solar resources, we'll need to account for the intra-hour variability and carry additional flexible resources. Solar resource output can widely swing due to local cloud cover and smoke, reducing output by over 60% in minutes. We must continue assessing this and developing our operating reserves structure to evaluate any needed changes.

### Risk mitigation

This plan defines four flexible strategies to achieve our 2030 Zero Carbon Plan. We have chosen flexible approaches because a significant amount of work and additional analysis is needed to ensure we continue to provide safe, reliable and affordable power to our customers while advancing toward our ultimate goal of zero carbon.

There are methods for developing dynamic road maps to ensure achievement of the optimal strategy in the long run given changing circumstances. One such planning regime that avoids indecision is an adaptive road map utilizing a least-regrets decision analysis framework. These strategies allow us to use the information we know today to make the best possible decision, while considering all known unknowns, allowing for course correction and maintaining cost and reliability constraints.

To further address uncertainty and risks associated with changing regulatory framework, we have proposed a robust government affairs strategy. As part of this, we will work with regulators and policy makers to encourage flexible policies to support carbon reductions.

### Flexible and adaptive strategies

Adaptive planning uses decision-tree analyses where each branch represents one possible version of the future and each decision node denotes where there are forks along the tree. This

method can provide insight into the sequencing of actions over time, potential lock-ins and path dependencies.

An adaptive plan can be thought of as a series of possible actions optimized to achieve some objective under the given scenario conditions, where there are several scenario conditions (e.g. future technology cost uncertainty) and therefore several pathways. Each possible strategy along the plan can be linked, to a certain extent, to capture strategy interdependencies and allow for changing contributions by each strategy as needed. Initially, any strategic path can be chosen, but as one moves down a selected path, moving to another path, or adapting to changing conditions outside of the particular scenario conditions optimized for, becomes more difficult.

This challenge is known as lock-in or path dependency. Typically, the more actions taken along a particular strategy, the more difficult it will become to adapt to future changes. Central to adaptive plans are tipping points, which are the conditions under which a pathway no longer meets the clearly specified objectives which trigger an evaluation and path transition. The key point of tipping points is to avoid costly ramifications from lock-in on a non-optimal path.

Least-regrets decision analysis is a method which could be used in tandem with an adaptive road map to determine decisions at each node or fork that minimize regret-costs. This method analyzes each decision along an optimal path (e.g., plant retirement or resource investments in our 2030 Zero Carbon Plan) under a set of different future trajectories to test the robustness of each decision to changing conditions. The analysis is used immediately prior to a decision being made, or in the case of a new initiative, on the first set of initial decisions required.

The first step is to determine no-regrets decisions, which are decisions made in every possible version of the future analyzed (e.g., solar investments are made in every scenario for SMUD's carbon neutrality analysis). These are decisions which can be made immediately if need be and represent little to no risk. The next step is to determine the set of initial decisions beyond the no regrets decisions and choose the option with the least-regrets costs. To calculate regrets costs, each decision, in turn, is "made" in the model and the model is run to determine possible cost impacts of this decision given uncertain futures. The decision that minimizes cost across various versions of the future is the least-regrets decision.

### **Board reporting schedule and check-ins**

To ensure our Plan is taking advantage of technology advancements and addressing changes in market conditions, we'll conduct biannual IRP updates, which will incorporate changes needed to meet our 2030 zero carbon goal. In addition to biannual IRP updates, the Board will be updated on progress through our annual Strategic Direction reporting.

## Glossary

**Ancillary services:** Services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the transmission system in accordance with good utility practice. The Ancillary Services include system balancing and control, frequency response, regulating reserve, contingency reserve, energy imbalance and voltage control.

**Balancing Authority Area:** The generation, transmission and loads within the boundaries of a balancing authority. The balancing authority is responsible for maintaining load-resource balance within this area.

**Black-start capability:** Capability of a generator to start up without support from external power sources, which is needed in the event of a system blackout to energize other equipment and restore the system.

**California-Oregon Border:** Trading hub for the transfer of power from the Pacific Northwest and California.

**California-Oregon Transmission Project:** Transmission project connecting the Balancing Area of Northern California with the California-Oregon border trading hub.

**Capacity:** the maximum output an electrical generator can produce (i.e., MW)

**Carbon accounting:** the processes used to quantify the amount of carbon dioxide an entity (such as an organization or a country) emits.

**Carbon sink:** a reservoir able to accumulate and store carbon dioxide for an indefinite period of time; it absorbs more carbon than it releases

**Days cash:** A measure of how much cash we have on hand to pay for ongoing expenses.

**Distributed energy resources:** energy solutions where customers implement technology that change how they use energy. They can include, among many others, rooftop solar, energy efficiency improvements, demand response and batteries.

**Energy:** the amount of electricity a generator produces over a specific period of time (i.e., one hour – MWh).

**Fixed charge coverage ratio:** A measure of how much cash comes in each year, compared to the principal and interest payments on debt.

**Frequency response reserve:** The amount of the reserve that is online and can automatically respond to system frequency change.



**Inertia:** Physical resistance to frequency changes in the first few seconds following a system disturbance before generator frequency response kicks in. This resistance to change (typically from large rotating generators) gives automated control devices needed time to respond.

**Market price:** The price at which supply equals demand for the day-ahead or hour-ahead markets. Market-based pricing is set in open market systems of supply and demand under which prices are set solely by agreement as to what buyers will pay and sellers will accept. Such prices could recover less or more than full costs, depending upon what the buyers and sellers see as their relevant opportunities and risks.

**Net income:** SMUD's revenues less expenses.

**Operating reserves:** The total capacity above the load demand required to provide regulation and to cover the load forecasting errors, planned and unplanned equipment outages and system emergencies. It includes regulating reserve, contingency reserve, frequency response reserve and other reserves that a utility decides to preserve for unexpected situations.

**Planning reserve margin (PRM):** Additional reserve margin for long-term planning equal to 15% of SMUD's load.

**Reliability adequacy:** we have adequate grid reliability services to keep the electricity flowing. These services are sometimes referred to as ancillary services and include additional generation capacity and generator capabilities that we need to respond to sudden changes in system conditions and system disturbances, frequency response, generation and load balancing and voltage control.

**Reliability:** the ability of the power system to provide the services our customers expect when they want and need them, even under difficult circumstances.

**Renewables Portfolio Standard (RPS):** a regulatory mandate designed to increase production of energy from renewable energy sources. In California, it sets renewable energy procurement requirements for load-serving entities.

**Resource adequacy:** a condition in which we have acquired adequate resources to satisfy our forecasted energy needs reliably.

**Short-lived climate pollutants:** potent climate pollutants that have relatively short atmospheric lifetimes (relative to carbon dioxide). These pollutants include methane, hydrofluorocarbons, and anthropogenic black carbon.

**Sustainable community:** a community with a healthy environment, a prosperous economy, and equitable access to the multiple essential community components necessary to ensure a high quality of life including livable wage employment and training opportunities, affordable housing options, transportation and connectivity, health care access, nutrition, education opportunities, and digital access.

**System adequacy:** we're capable of serving our load under extreme weather conditions and identify our system's energy import limits.



**System peak:** Maximum annual energy demand within SMUD's service territory.

**Under-resourced community:** these communities lack equitable access to the multiple essential community components necessary to ensure a high quality of life, including but not limited to livable wage employment and training opportunities, affordable housing options, transportation and connectivity, health care access, nutrition, education opportunities, digital access and a healthy environment.

**Variable energy resource (VER):** a generation resource where the output is not perfectly controllable by a transmission operator and is dependent upon a fuel resource that cannot be stored/stockpiled, and availability is uncertain. Examples include solar and wind.

## Acronyms

**ARRA** – American Reinvestment and Recovery Act  
**BANC** – Balancing Authority of Northern California  
**BYOD** – bring your own device  
**CAISO** – California Independent System Operator  
**CARB** – California Air Resources Board  
**CEC** – California Energy Commission  
**CO** – carbon monoxide  
**CPUC** – California Public Utilities Commission  
**CVFA** – Central Valley Financing Authority  
**DERMS** – Distributed Energy Resource Management System  
**DERs** – distributed energy resources  
**DOE** – Department of Energy  
**dth** – dekatherms  
**E3** – Energy + Environmental Economics  
**EI** – emission intensity  
**EPA** – U.S. Environmental Protection Agency  
**EV** – electric vehicles  
**EVSE** – electric vehicle supply equipment  
**FEMA** – Federal Emergency Management Agency  
**FERC** – Federal Energy Regulatory Commission  
**FIT** – feed-in-tariffs  
**GHG** – greenhouse gas emissions  
**GWh** – gigawatt hours  
**HVAC** – heating, ventilation, and air conditioning  
**ILT** – Innovation Leadership Team  
**IRP** – Integrated Resource Plan  
**kV** – kilovolt  
**kW** – kilowatt  
**LCFS** – Low Carbon Fuel Standard  
**LDSE** – long-duration energy storage  
**MED** – Medical Equipment Discount Rate  
**MW** – megawatt  
**MWh** – megawatt hours  
**NEM** – net energy metering

**NERC** – North American Electric Reliability Corporation  
**NOx** – Nitrogen Oxide  
**O&M** – operations and maintenance  
**PM10** – particulate matter smaller than 10 micrometers in diameter  
**PRM** – Planning Reserve Margin  
**PV** – photovoltaic systems  
**RECAP** – E3's Renewable Energy Capacity model  
**RESOLVE** – E3's Renewable Energy Solutions model  
**RFI** – request for information  
**RMI** – Rocky Mountain Institute  
**RNG** – renewable natural gas  
**RPS** – renewables portfolio standard  
**RS2** – Rancho Seco 2 solar project  
**SEPA** – Smart Electric Power Alliance  
**SLCPs** – short-lived climate pollutants  
**SMAQMD** – Sacramento Metropolitan Air Quality Management District  
**SMUD** – Sacramento Municipal Utility District  
**SOx** – sulfur dioxide  
**SPA** – Sacramento Power Authority  
**TBD** – to be decided  
**TOD** – time-of-day  
**UARP** – Upper American River Project  
**V2G** – vehicle-to-grid  
**VER** – variable energy resource  
**VOC** – volatile organic compounds  
**VPP** – virtual power plant  
**WAPA** – Western Area Power Administrator

## Appendix A: Existing SMUD resources

Table 13. Description of SMUD resource capacity as expected available in July 2021<sup>64</sup>

Resource	Resource Type	Fuel	Nameplate Capacity (MW)	Summer Capacity (MW)
Campbell	Combined Cycle	Natural Gas	178	170
Carson	Combined Cycle, Cogen	Biogas & Natural Gas	111	103
Cosumnes	Combined Cycle	Biogas & Natural Gas	621	576
McClellan	Gas Turbine	Natural Gas	72	72
Proctor & Gamble	Combined Cycle, Cogen	Natural Gas	193	166
UARP	Hydroelectric	Water	688	675
Southfork PH	Hydroelectric	Water	2.7	1
Chili Bar	Hydroelectric	Water	8	8
Camp Far West	Hydroelectric	Water	9	3
WAPA Hydro	Hydroelectric	Water	331	328
New Hope	Dairy digester	Biomass	0.45	0.4
Kiefer Landfill	Landfill gas	Biomass	14	12
Santa Cruz Landfill	Landfill gas	Biomass	1.6	1.3
Simpson Biomass	Biogas/Biomass	Biomass	55	42
Van Steyn Dairy	Dairy digester	Biomass	0.2	0.1
Van Warmerdam Dairy	Dairy digester	Biomass	0.6	0.5
Yolo	Landfill gas	Biomass	2.7	2.4
Cal Energy	Geothermal	Geothermal	30	25.5
Patua	Geothermal/PV	Geothermal/Sun	22	11.8
Feed-In Tariff Projects	Solar PV	Sun	98	57
Rancho Seco PV	Solar PV	Sun	11	5.4
Rancho Seco II	Solar PV	Sun	160	72.4
Recurrent PV	Solar PV	Sun	60	34
Wildflower	Solar PV	Sun	13	4.7
Grady	Wind	Wind	200	31.5
High Winds	Wind	Wind	50	14.4
Solano	Wind	Wind	230	52.7

<sup>64</sup> Nameplate rating is the maximum simultaneous rated capacity output of the project. Summer capacity is the rated availability during the summer for thermal and hydro resources and the statistical probable output of wind and solar. Summer capacity values are representative of our resource adequacy plans for July 2021.

## Appendix B: UN Sustainable Development Goals<sup>65</sup>

The United Nations has identified 17 sustainable development goals to transform our world on three levels: Global leaders should pursue strong leadership, more resources and smarter solutions. At the local level, they should lay the foundation for needed transitions in policies, budgets, institutions and regulatory frameworks. As for people, everyone needs to take action to generate momentum and push for necessary transformations.

### **The 17 sustainable development goals are:**

GOAL 1: No Poverty: Economic growth must be inclusive to provide sustainable jobs and promote equality.

GOAL 2: Zero Hunger: The food and agriculture sector offer key solutions for development and is central for hunger and poverty eradication.

GOAL 3: Good Health and Well-being: Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development.

GOAL 4: Quality Education: Obtaining a quality education is the foundation to improving people's lives and sustainable development.

GOAL 5: Gender Equality: Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world

GOAL 6: Clean Water and Sanitation: Clean, accessible water for all is an essential part of the world we want to live in.

GOAL 7: Affordable and Clean Energy: Energy is central to nearly every major challenge and opportunity.

GOAL 8: Decent Work and Economic Growth: Sustainable economic growth will require societies to create the conditions that allow people to have quality jobs.

GOAL 9: Industry, Innovation and Infrastructure: Investments in infrastructure are crucial to achieving sustainable development.

GOAL 10: Reduced Inequality: To reduce inequalities, policies should be universal in principle, paying attention to the needs of disadvantaged and marginalized populations.

GOAL 11: Sustainable Cities and Communities: There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.

GOAL 12: Responsible Consumption and Production: Responsible Production and Consumption

GOAL 13: Climate Action: Climate change is a global challenge that affects everyone, everywhere.

GOAL 14: Life Below Water: Careful management of this essential global resource is a key feature of a sustainable future.

GOAL 15: Life on Land: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

GOAL 16: Peace, Justice, and Strong Institutions: Access to justice for all, and building effective, accountable institutions at all levels.

GOAL 17: Partnerships to achieve the Goal: Revitalize the global partnership for sustainable development.

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<sup>65</sup> Adopted from <https://sdgs.un.org/goals>

## Appendix C: Innovation

As part of the process to develop our 2030 Zero Carbon Plan, SMUD asked the public, stakeholders and its staff to submit innovative ideas to help achieve our goal of zero carbon by 2030. The table below includes a list of all the ideas that were submitted and accepted after evaluation by our ILT. This list includes ideas that are incorporated into this Plan plus others that will be explored after adoption of the Plan because additional analysis and studies are needed or insufficient time to properly assess the idea before the Plan is released in March 2021.

**Table 14. Ideas submitted to and considered by the ILT**

Title	Idea Description
Utility-scale photovoltaic generation maximization	Maximize in-service territory utility-scale photovoltaic generation (GWh) with high density reliable solar energy coupled with battery energy storage system.
Creating small and medium business (SMB) zero carbon advocates	Many SMB customers are not willing to make the initial investment in energy efficiency and/or zero carbon technologies that have perceived long payback periods. By performing journey mapping and looking at the end-to-end value chain, we can identify opportunities that can turn SMB customers into zero carbon advocates.
"Strategically located and right sized" battery storage	Strategically placed battery storage systems on our grid can help us achieve carbon reduction goals gradually ahead of 2030. This technology is already being used by the market as evidenced by the amount of solar + storage and stand-alone storage that are being developed in the CAISO interconnection queue. Many of the technologies that will help us reach absolute zero do not exist yet or are too expensive and unproven at this point. This approach allows us to realize some of these benefits without overcommitting and putting our customers at risk of rate increases.
Hydrogen fuel cells for long-term storage <sup>66 67</sup>	Create hydrogen gas through electrolysis and store in tanks when energy is cheap or when there is excess from PV. Use the hydrogen with a fuel cell to dispatch that energy when needed. This has a very long-term storage potential since the hydrogen can be stored indefinitely without degradation.

<sup>66</sup> *Optimizing Renewable Energy Storage With Hydrogen Fuel Cells*, BALLARD (Dec. 17, 2020), [https://blog.ballard.com/renewable-energy-storage?utm\\_campaign=Automatic%20Blog%20Email&utm\\_medium=email&hsmi=103925816&hsenc=p2ANqtz-9ogrcEKYF9CyBTuDyIhldVtQni\\_MYcOI6i\\_O\\_T5qL0LGZZrc2ZHDPvaVODLrOAEoNSAsqK4\\_G1qmre654BgcCuKi5XA&utm\\_content=103925816&utm\\_source=hs\\_email](https://blog.ballard.com/renewable-energy-storage?utm_campaign=Automatic%20Blog%20Email&utm_medium=email&hsmi=103925816&hsenc=p2ANqtz-9ogrcEKYF9CyBTuDyIhldVtQni_MYcOI6i_O_T5qL0LGZZrc2ZHDPvaVODLrOAEoNSAsqK4_G1qmre654BgcCuKi5XA&utm_content=103925816&utm_source=hs_email).

<sup>67</sup> *To batteries and beyond: With seasonal storage potential, hydrogen offers 'a different ballgame entirely'*, UTILITY DIVE (Oct. 12, 2020), <https://www.utilitydive.com/news/to-batteries-and-beyond-with-seasonal-storage-potential-hydrogen-offers/584959/>.

Title	Idea Description
Incentives to vendors and community partners <sup>68 69</sup>	Provide incentives to SMUD vendors and community partners to join in the zero carbon effort similar to what Walmart is doing with its supply chain. This suggestion would expand on the Walmart idea to include our Community Based Organization partners.
Reform grid architecture to support aggressive zero carbon goal <sup>70</sup>	This idea expands on previous ideas already mentioned. SMUD could focus priorities and resources towards creating a new foundation for the distribution grid to better utilize and integrate DERs; solar, batteries, microgrids, EVs, combined heat and power, RNG, hydrogen, fuel cells, etc. The grid management system would ensure the distribution grid is balanced and fully maximized before importing or exporting power to/from the transmission grid. The bottom-up approach would also involve the community and incentivize the customer to support more DERs to reach the new zero carbon goal.
Government relationship and lobby for favorable energy policies	Actively lobbying state and federal government on energy policies that are favorable to electric utilities. Forming coalitions with other utilities to shape policies and legislations regarding DERs.
Profit-sharing with VPP aggregators <sup>71</sup>	It is expected that VPP will become a major supply side resource in the future grid. Given the distributed nature and potential market risk of VPPs, the operations will likely be handled by third-party aggregators. In order to balance the risk and profitability, SMUD should carefully design contracts and evaluate different profit-sharing schemes with these aggregators.
Liquid air energy storage - Highview power <sup>72</sup>	Liquid air energy storage is a long-duration storage technology that stores renewable energy in the form of liquid air (-196degC) and then expand that air through a turbine to re-generate electricity. The technology is very scalable (4 hours to 4 weeks).
Malta electro-thermal energy storage system <sup>73</sup>	Long-duration energy storage that leverages a heat pump with a chilled liquid cold reservoir and a molten salt heat reservoir. Process is reversed through a heat engine. Process sometimes referred to as a Carnot battery.

<sup>68</sup> See <https://corporate.walmart.com/newsroom/2019/05/08/walmart-on-track-to-reduce-1-billion-metric-tons-of-emissions-from-global-supply-chains-by-2030> . Last accessed 22 March 2021.

<sup>69</sup> *The challenge of climate change*, MCKINSEY & COMPANY (Dec. 11, 2020), <https://www.mckinsey.com/business-functions/sustainability/our-insights/the-challenge-of-climate-change#>.

<sup>70</sup> Lorenzo Kristov, *The Bottom-Up (R)Evolution of the Electric Power System*, IEEE POWER & ENERGY MAGAZINE (March 20, 2019), <https://cleanpowerexchange.org/wp-content/uploads/2019/05/IEEE-PE-1903-Kristov.pdf>.

<sup>71</sup> See Leslie Nemo, *New York approves utility revenue sharing for battery storage systems*, UTILITY DIVE (Jan. 29, 2021), [https://www.utilitydive.com/news/new-york-approves-utility-revenue-sharing-for-battery-storage-systems/594207/?utm\\_source=Sailthru&utm\\_medium=email&utm\\_campaign=Issue:%202021-02-02%20Utility%20Dive%20Storage%20%5Bissue:32234%5D&utm\\_term=Utility%20Dive:%20Storage](https://www.utilitydive.com/news/new-york-approves-utility-revenue-sharing-for-battery-storage-systems/594207/?utm_source=Sailthru&utm_medium=email&utm_campaign=Issue:%202021-02-02%20Utility%20Dive%20Storage%20%5Bissue:32234%5D&utm_term=Utility%20Dive:%20Storage).

<sup>72</sup> *Technology*, HIGHVIEW POWER, <https://highviewpower.com/technology/>. Last accessed 22 March 2021.

<sup>73</sup> *Our Solution*, MALTA INC., <https://www.maltainc.com/our-solution>. Last accessed 22 March 2021.

Title	Idea Description
EV managed charging (V1G)	Manage charging times or throttle the rate of charging. Managed EV charging can reduce the scale of impact and need to upgrade service transformers and eventually (with higher EV adoption) upstream distribution infrastructure such as feeders and substations which will reduce the cost exposure to broad EV adoption. Managed EV charging also can help with the consumption of excess renewable generation supply (i.e. day time solar overgeneration via workplace or at-home charging) that reduces the need to curtail renewable generation, export to the market at a discounted price or make additional investments in energy storage resources.
EV Vehicle-to-grid (V2G) and/or Vehicle-to-home	Vehicle sends electricity back to grid/home. Manage charging times or throttle the rate of charging including potential reverse power flow (discharge of the vehicle battery). V2G from a functional standpoint is a superset of V1G. V2G-enabled EVs can mimic stationary battery storage. As a result, each V2G-enabled EV offers a greater amount load flexibility than a V1G-enabled EV.
DER aggregation / Virtual Power Plant	Including use of supply side renewables. Focus on larger scale - battery and rooftops directly controlled by DERMS. VPP technology is a longer-term solution further down the road. Confirm difference between this and load flexibility.
Load flexibility	Thermostat/Water Heater. Set and forget type systems on customer side.
Carbon capture and sequestration (CCS)	Run carbon from our thermal plants through chemical process to remove carbon dioxide to pure gas/liquid form and transport and store in underground geologic formations (such as spent gas fields). Currently viable technology, but there is no place to store or off-taker for this product in Sacramento. It would be expensive to pipe somewhere else.
Power-to-gas technology (Electrolysis + hydrogen)	Long-term solution that is the hot topic across the industry. Complexities around storage, transport, infrastructure permitting and safety. Very expensive, like 10x to 16x the cost of natural gas today. One hundred percent hydrogen turbines do not exist today, but turbines that can burn up to 30-40% hydrogen exist today (mixed with natural gas).
Long-duration storage	Could be multiple technologies (pumped hydro, flow batteries, etc.)
Drop-in carbon free fuels at existing gas plants	Drop-in carbon free fuels at existing gas plants (biogas, biomethane, or biodiesel). Fuels that can be burned in our existing gas plants with little to no capital expense on the generation set. This is a near- to mid-term solution with complexity in how to transport the carbon free fuels without emitting additional carbon during transportation. Options can be expensive.



Title	Idea Description
2030 Zero Carbon Hack-a-Thon <sup>74</sup>	In partnership with universities (Sacramento State, UC Davis, community colleges) and/or Code for Sacramento and Women Who Code meet up groups, host a single or multi-day opportunity for the best and brightest students in our region to come together and develop technology/software solution as an idea-generating event resulting in project ideas localized to our community. Provide a purpose-driven program that could result in valuable ideas and potential innovation.
Heliogen <sup>75</sup>	Modular Concentrating Solar Power. New innovations in tracking technology substantially reduce commissioning and O&M costs while increasing performance. Eighty-five percent solar-only CF using molten salt storage. Formed out of Idealab with key contributions from SolarReserve and eSolar. Two projects under development, 5 MW each. Current full-scale modular size is a 5 MW plant and can add multiple to tens of multiples together. Either build locally to tap into world-class summertime DNI in Sacramento or build in Mojave and wheel power.
Bioeconomy Development Opportunity Zone (low-risk feedstock conversion) <sup>7677</sup>	Establish bioeconomy facilities in Opportunity Zones which will bring high-value careers to under-resourced communities. There are no bioeconomy facilities in OZs currently so these communities are not easily able to take advantage of related careers. Focus would be on low-risk feedstock (e.g. The Wonderful Company). Research shows great potential.
Long term "Collab-etition" with storage and traditional infrastructure manufacturers to enable a zero carbon grid <sup>78</sup>	The baseline assumption for this idea is that in order to reach our zero carbon goal, we will need large-scale adoption of electrification measures such as EVs & EVSE, DERS, and a customer base that has been enabled to be responsive to SMUD's ADR+ signals. To provide a grid that is capable of easily interconnecting and interacting with these technologies while maintaining high reliability scores, investments in infrastructure improvements may be necessary. Investing in energy storage is an alternative to infrastructure improvements due to capacity restraints. The primary scope of this idea is to transform SMUD's grid to be ready for the 2030 zero carbon goal and to do so with an open relationship with one storage and one "traditional" infrastructure manufacturer at the planning table and jobsites.

<sup>74</sup> This idea is similar to Western Washington University's Institute for Energy Studies annual Carbon Hackathon. See the following for more information. <https://energy.wvu.edu/carbon-hackathon>. Last accessed 22 March 2021.

<sup>75</sup> See *How it Works*, HELIOGEN, <https://heliogen.com/>. Last accessed 22 March 2021.

<sup>76</sup> See <https://bdozone.org/>. Last accessed 22 March 2021.

<sup>77</sup> Jordan Soloman, *BD Zones and BDO Zones: Driving Bio-Based Investment in Opportunity Zones*, ENVTL. AND ENERGY STUDY INST., [https://www.eesi.org/files/073020\\_Ecostrat\\_Driving\\_Bio-Based\\_Investment.pdf](https://www.eesi.org/files/073020_Ecostrat_Driving_Bio-Based_Investment.pdf). Last accessed 22 March 2021.

<sup>78</sup> Similar to the idea published by Kristen Coyne, 4 January 2016. <https://nationalmaglab.org/news-events/feature-stories/collaborate>. Last accessed 24 March 2021.



Title	Idea Description
Rail energy storage <sup>7980</sup>	Develop a portion of private land near UARP facilities with a rail-based gravity energy storage scheme. An electrically-powered railroad would be built between a high elevation point and a low elevation point on land out of the way from public access. Rail cars of heavy weight would run unattended on this line, connected into a train. Rail cars would be equipped with motor-generator units. This rail line would be sited adjacent to an existing UARP transmission line. During times of excess generation, the train would receive energy and run uphill, consuming energy from the grid. When load is needed, the train would run downhill, contributing energy to the grid. An example site is the region between Big Hill and Union Valley Reservoir.
Biomass power at the Sierra Pacific Industries (SPI) facility in Camino <sup>81</sup>	Seems like the technology is improving to make these facilities more efficient and we have this massive supply of materials just outside our service territory, in the mountains surrounding Sacramento. Many of these projects may not pencil out due to cost of transporting the materials to the facility but there are other benefits of having these facilities, namely reducing the build-up of fuels from non-merchantable wood byproducts. We have a potential location in Camino at the old SPI mill site and this could be a joint venture with them, as they own a lot of land in the area and are regularly harvesting.
Liquid metal long-Term duration storage battery – Ambri <sup>82</sup>	Co-founded by MIT materials chemistry professor Donald Sadoway in 2010 and part-funded to get off the ground by Bill Gates, Ambri has designed a battery that uses a liquid calcium alloy anode, molten salt electrolyte and a cathode made of solid particles of antimony. The company claims this enables a low number of steps in the cell assembly process while the materials are low-cost. Ambri also integrates the batteries into a containerized energy storage system solution of 1 MWh and up to 250 kW.
Collaboration or co-development opportunity with Sacramento-based startup, Infinium <sup>83</sup>	Potential collaboration or co-development opportunity with Sacramento-based startup, Infinium. About Infinium: The company is commercializing a process that uses renewable electricity to release hydrogen from water and mix the hydrogen with waste carbon dioxide to make synthetic gas.

<sup>79</sup> Advanced Rail Energy Storage, LLC. UTILITY SCALE ELECTRIC ENERGY STORAGE SYSTEM, Patent No.: US 8.593,012 B2.

<sup>80</sup> GravityLine, ARES, <https://aresnorthamerica.com/gravityline/>.

<sup>81</sup> See <https://www.spi-ind.com/>. Last accessed 22 March 2021.

<sup>82</sup> Technology, AMBRI INC., <https://ambri.com/technology/>. Last accessed 22 March 2021.

<sup>83</sup> Technology, INFINIUM, <https://infiniumco.com/technology/>. Last accessed 22 March 2021.

Title	Idea Description
Utility solar in high country areas	Consider installing utility-scale solar in our UARP service area. There are lots of open area, burn scar acreage from the Kings fire and other fires that have been cleared and could be potential sites. Solar panels operate more efficiently at higher elevations where it is cooler and the air quality is better. Transmission lines are in the vicinity to import power into SMUD's power grid. Roads are available for site access too.
Thermal energy grid storage	MIT <sup>84</sup> is working on a very high temperature long-duration storage technology that leverages Graphite Thermal Storage Units to store electricity in the form of a liquid tin working fluid. The energy is extracted using a multi-junction PV power block. The liquid tin is transferred to the power block using a patented liquid tin pump. The liquid tin is heated to >2000degF using excess renewables, and converted back to electricity using the multi-junction PV power block, which can be inserted and removed from a cavity containing the molten tin to modulate power production. The tin, when heated to these temperatures, emits a bright white light that is used to capture the stored energy. The technology makes use of common very low cost materials, aside from the small amount of multi-junction PV cells, which are readily available, making it very scalable and low-cost.
Rancho Seco industrial area use	Use the Rancho Seco site to implement and test chosen ideas and technologies. Facility siting will need to be addressed, and a site that was home to a nuclear power plant should be able to house battery banks, H2 storage and many other possible technologies. Its proximity to solar and our Cosumnes Power Plant also make Rancho Seco a favorable location.
Each change matters	Make all high capacity solar energy/battery storage auto dispatchable using EMS to better manage energy in the grid. SMUD needs to have rooftop solar control capability. Install/lease more solar plants all over the SMUD region. Thermal plant/hydro plant controller needs to be tuned further to overcome solar variation. Control EV charging as needed. Need more battery storage to overcome duck curve and smooth control of grid. Not only SMUD needs carbon FREE energy, but that needs to be manageable like any other existing generating plant.

<sup>84</sup> Atomistic Simulation & Energy Research Group: Thermal Energy Grid Storage (TEGS) Concept, MASS. INST. OF TECH., <https://ase.mit.edu/projects/thermal-energy-grid-storage-tegs/>. Last accessed 23 March 2021.

Title	Idea Description
Allam-Fetvedt Cycle <sup>85</sup> for up front carbon capture	<p>Net Power is operating a new type of natural gas plant in LaPorte, Texas that uses the Allam-Fetvedt Cycle. The process involves burning fossil fuel with oxygen instead of air to generate electricity without emitting any carbon dioxide. Not using air also avoids generating NOx, the main atmospheric and health contaminant emitted from gas plants. This is a new, high-pressure, oxy-fuel, supercritical carbon dioxide cycle that generates low-cost electricity from fossil fuels while producing near-zero air emissions. All carbon dioxide that is generated by the cycle is produced as a high-pressure, pipeline-ready by-product for use in industrial processes, or that can be sequestered underground in tight geologic formations where it will not get out to the atmosphere for millions of years. The Allam Cycle also means the power plant is a lot smaller and can be sited in more areas than older plants can.</p>
Concentrating Solar Power with Thermal Energy Storage. <sup>86</sup>	<p>Concentrating energy storage can shift bulk generation like pumped hydro, but with lower energy losses. These technologies are complementary to battery storage however are longer duration than current battery storage installations. Dispatchable CSP enables greater penetration of inverter-based generation.</p>

<sup>85</sup> *The Allam-Fetvedt Cycle*, NET POWER, <https://netpower.com/technology/>. Last accessed 23 March 2021.

<sup>86</sup> Dr. Fred Morse, President of Morse Associates, Inc,

## Appendix D: Global energy decarbonization efforts

In setting a goal of reaching zero carbon by 2030, SMUD is laying out an aggressive clean energy pathway. Here's an overview of carbon reduction goals in other jurisdictions.

- **Sweden** is on an ambitious GHG reduction trajectory with a long-term climate goal that by 2045 Sweden will have net zero GHG emitted into the atmosphere and should thereafter achieve negative emissions. This translates to 2045 emissions being at least 85% lower than emissions in 1990. Sweden has already implemented several major climate measures such as the Klimatkivet initiative (the Climate Leap), the reduction obligation, a bonus-malus-system for new light vehicles, urban environment agreements and the industrial green investment aid program Industrikivet (the Industrial Leap). Moreover, within Sweden there is robust cooperation for the Fossil Free Sweden initiative across the business community, municipalities, regions, research institutions and civil society organizations. So far, 22 sectors (including some large emitting sectors like steel, mining and minerals and the automotive sector) have produced and submitted road maps for fossil-free competitiveness.<sup>87</sup>
- **Australia** has set a goal of reducing economy-wide GHG emissions between 26% and 28% below 2005 levels by 2030.<sup>88</sup> It plans to leverage \$18 billion in government funds and an additional \$50 billion in private investments to drive down the cost of deploying new and emerging technologies aiming for economic competitiveness with existing business models. Priority technologies are clean hydrogen, energy storage, low carbon materials (steel and aluminum), carbon capture and storage and soil carbon.
- The **European Union** (EU) has set a binding target for net domestic reduction of at least 55% by 2030 relative to 1990 levels.<sup>89</sup> Within the EU, fossil fuels are the largest source of GHG emissions and reforming the energy sector will play a central role in transitioning to a climate-neutral economy. It will also craft policies to improve energy efficiency such as strengthening the role of Eco-design standards and improve EU consumer access to energy efficient products. It'll also explore opportunities to review and revisit renewable energy sustainability criteria and the EU certification system for all renewable and low carbon fuels. Finally, the EU will tackle vehicle emissions by strengthening carbon dioxide standards for cars and vans, and reflecting on the phase-out target date for internal combustion engines.
- The **United Kingdom** has set an economy-wide target to reduce GHG emissions by at least 68% relative to 1990 levels by 2030.<sup>90</sup> The U.K.'s Climate Change Committee has recommended a comprehensive path including encouraging healthier diets with reduced consumption of beef, lamb and dairy products; extensive electrification measures; expanded use of renewable and other low carbon power generation and development of

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<sup>87</sup> [https://unfccc.int/sites/default/files/resource/LTS1\\_Sweden.pdf](https://unfccc.int/sites/default/files/resource/LTS1_Sweden.pdf).

<sup>88</sup> <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Australia%20First/Australia%20NDC%20recommunication%20FINAL.PDF>.

<sup>89</sup> <https://ec.europa.eu/commission/presscorner/api/files/attachment/866232/EU%20Climate%20Target%20Plan%202030%20Key%20contributors%20and%20policy%20Tools.pdf.pdf>.

<sup>90</sup> <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20Kingdom%20of%20Great%20Britain%20and%20Northern%20Ireland%20First/UK%20Nationally%20Determined%20Contribution.pdf>.

a hydrogen economy. Notably, its transportation sector recommendations move beyond passenger vehicles and heavy-goods vehicles to include marine vessels.<sup>91</sup>

- **Mexico** has set its GHG reduction goal at 50% of national GHGs by 2050 below its 2000 emissions level. For its energy transition, Mexico has established policies to direct action in five important areas: the clean energy transition, energy efficiency and sustainable consumption, sustainable cities, reduction of SLCPs and sustainable agriculture and protection of natural carbon sinks. It has also identified strategies for critical crosscutting issues including the need for market-based instruments to price carbon, increased innovation, more research and development of new technologies and the need to build a climate culture with mechanisms for social and private sector participation.<sup>92</sup>
- **Canada** has set a mid-century strategy consistent with net emissions falling by 80% by 2050, relative to 2005 levels. To do this, Canada has noted it will require substantial effort on the part of all Canadians and that there will need to be a fundamental restructuring of multiple sectors of the economy. Cost-effective abatement opportunities will be explored for virtually every GHG source and activity. Specific to the energy sector, Canada will pursue opportunities for enhanced energy efficiency and conservation, to find cleaner ways to produce and store electricity and to switch towards non-emitting electricity or other low-GHG alternatives.<sup>93</sup>

In the U.S., efforts to decarbonize energy supply are largely decentralized. Most of the gains within the U.S. are attributable to state-level action and the economics of solar and wind as well as the shale boom driving new development away from coal. Large U.S. corporations are also playing a role. For example, Microsoft has committed to be carbon negative by 2050. And, in its first sustainability report, it forecasts a 6% reduction in carbon emissions during the 2020 fiscal year. Moreover, Microsoft reinforced its commitment to sustainability by announcing that progress on sustainability goals will be included as a factor in executive pay. More recently, market forces have prompted General Motors to announce it would seek to be carbon neutral by 2040, which the company hopes to achieve, in part, by aiming to make all of its light-duty vehicles (cars, pickup trucks and SUVs) electric by 2035.

Cities and municipalities are also pledging to reduce their climate impacts.

- The **City of Sacramento** has adopted a climate emergency declaration that commits the city to carbon neutrality by 2045. The Mayors' Commission on Climate Change further identifies recommended actions to achieve net zero carbon emission by 2045. The City is in the process of updating its climate action plan to reduce community-wide emissions to 40% below 1990 by 2030 and is embarking on an electrification ordinance for new construction, with all-electric construction required for low-rise in 2023 and for buildings over three-stories in 2026.
- The **County of Sacramento** has adopted a climate emergency declaration that commits the county to carbon neutrality by 2030 and is in the process of developing a community-wide climate action plan to reduce emissions.

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<sup>91</sup> <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>.

<sup>92</sup> [https://unfccc.int/files/focus/long-term\\_strategies/application/pdf/mexico\\_mcs\\_final\\_cop22nov16\\_red.pdf](https://unfccc.int/files/focus/long-term_strategies/application/pdf/mexico_mcs_final_cop22nov16_red.pdf).

<sup>93</sup> <https://unfccc.int/sites/default/files/resource/Canada's%20Mid-Century%20Long-Term%20Low-GHG%20Strategy.pdf>.

- The **City of Palo Alto** has a plan to reduce its emissions by 80% by 2030. The road map for achieving carbon neutrality includes strategies such as advancing smart grids, incorporating a zero waste and a circular economy, partnering with the community and maximizing use of carbon sequestration and storage in the natural environment.
- The **City of Richmond** has a climate action plan built upon community input and cross-sector collaboration, which prioritizes actions and outcomes of greatest community benefit – initiatives to improve equitable services and overall quality of life. Past initiatives included a ‘green’ job training program and employment opportunities for local youth, more miles of bikeways and a 10.5 MW solar facility. Looking to the future, focus areas include energy-efficient buildings and facilities, increased use and generation of renewable energy and improved sustainability of transportation and land use.
- The **City of San Diego** has committed to 100% clean energy by 2035 and has set additional targets for transportation (50% of urban commutes via transit, walking and biking), tree coverage (35% coverage throughout the city) and waste reduction (zero waste by 2040). To achieve this, the City will work to educate consumers on energy and water efficiency; improve local public health and increase local control, reducing dependencies on imported water and energy. The City has also placed job creation at the forefront indicating a commitment to setting incentive-based policies to help create green jobs, such as those manufacturing and installing solar panels.

U.S. utilities are setting carbon reduction goals too, with many placing themselves on a trajectory toward carbon neutrality or 100% carbon free electricity. Below, we’ve summarized what a few utilities are doing, but this list is not exhaustive. See **Error! Reference source not found.** for additional high-level information on GHG reduction goals some additional utilities and other locations around the world have set.

- **Los Angeles Department of Water and Power (LADWP)** will supply 55% renewable energy by 2025, 80% by 2036 and 100% by 2045.<sup>94</sup> One way it will do this is with its Intermountain Power Project, which is a two-unit 840 MW combined cycle natural gas plant that will replace a 1,800 MW coal facility.
- **Xcel Energy** has set a target of reducing GHG emissions by 80% below 2005 levels company-wide by 2030, which it’ll achieve through continued fleet transition, operational changes and by employing renewable, carbon free generation and energy storage technologies.<sup>95</sup>
- Virginia-based **Dominion Energy** had a plan to reach net zero carbon by 2050. However, that timeline has been accelerated by Virginia’s Clean Economy Act, which requires Dominion Virginia to supply at least 30% of its electricity from renewables by 2030 and by 2045, they must shut down their carbon-emitting plants.<sup>96</sup> It’s 2020 IRP indicates that efforts will focus on renewables, including a goal of 5.1 GW of offshore wind over the next 15 years, and eliminates previous plans to build new natural gas fired power plants.<sup>97</sup>

<sup>94</sup> [https://plan.lamayor.org/targets/targets\\_plan.html#:~:text=By%202050%2C%20L.A.%20will%20have,our%20progress%20in%20this%20fight](https://plan.lamayor.org/targets/targets_plan.html#:~:text=By%202050%2C%20L.A.%20will%20have,our%20progress%20in%20this%20fight).

<sup>95</sup> <https://www.xcelenergy.com/staticfiles/xcel/PDF/Xcel%20Energy%20Carbon%20Report%20-%20Feb%202019.pdf>

<sup>96</sup> <https://www.greentechmedia.com/articles/read/the-5-biggest-u.s-utilities-committing-to-zero-carbon-emissions-by-mid-century>.

<sup>97</sup> Ibid.

- In January 2020, Arizona-based utility **Arizona Public Service Electric** set a goal to provide 100% clean, carbon free electricity by 2050. It plans to achieve this by working toward a 2030 resource mix that's 65% clean energy with 45% of the generation portfolio coming from renewable energy. It's also accelerated the timeline to transition away from coal, ending all coal-fired generation by 2031 – seven years ahead of previous projections.
- **Portland General Electric** aims to achieve company-wide net zero GHG emissions by 2040. It plans on reducing emissions in its own operations by ending operations at coal plants and adding more renewables like wind, solar and battery storage.<sup>98</sup> It also plans to reduce emissions in the energy choices provided to its customers, continuing to create new, innovative programs that offer choices for customers looking for clean, green energy options.
- As the first carbon-neutral utility in the nation, over 80% of the power delivered by **City Light (Seattle)** is generated from carbon-free hydroelectricity.<sup>99</sup> It does not have coal or natural gas resources in its power supply portfolio, but it does make market purchases for balancing purposes. Emissions associated with those purchases are offset by the utility's GHG neutrality policy.
- The **Hetch Hetchy Power (City and County of San Francisco)** is comprised entirely of proven clean technology resources—385 MW of hydroelectric generation capacity and 11 MW of renewables (solar, wind and biogas). It powers all of the City's municipal facilities, residents and businesses in the San Francisco Shipyard, Treasure Island as well as other retail customers—nearly 20% of the City's electricity needs.

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<sup>98</sup> <https://portlandgeneral.com/about/energy-future/climate-goals>.

<sup>99</sup> <https://www.seattle.gov/city-light/energy-and-environment>



## **CLARIFICATIONS TO THE 2030 ZERO CARBON PLAN**

### **1. Study and prioritize retirement of McClellan in 2024 and Campbell in 2025**

As highlighted on pages 78-79 in the 2030 Zero Carbon Plan, our preliminary analyses suggest that McClellan could be retired in 2024 and Campbell in 2025. We wish to clarify that we intend to conduct detailed reliability studies in 2021 to confirm the feasibility of retiring McClellan in 2024 and prioritize this retirement. Similarly, for Campbell, we will conduct detailed reliability studies in 2021 or 2022 to confirm feasibility of its retirement in 2025 as an additional priority and then subsequently prepare detailed plans for the decommissioning of these plants and replacement of their capacity using suitable carbon free resources.

### **2. Eliminate the use of fossil fuels as soon as possible but no later than 2030.**

It is SMUD's intent to retire all our thermal gas fired power plants as soon as possible or repurpose these plants to utilize a clean fuel such as green hydrogen. Some of our generators may be able to burn 100 percent hydrogen with limited modifications once hydrogen becomes available at scale and a reasonable cost. Therefore, re-tooling and reinvesting in critical components of our plants may be more cost effective than full retirement and subsequent investment in brand-new clean energy technologies. Further detailed reliability studies will determine whether we will retool or retire the plants to ensure reliable and cost-effective operation of the system. If we were to retool the plants, there may be a period of time where a transition fuel such as biodiesel, biogas, or ethanol could be used until another zero carbon fuel like green hydrogen is cost effective and feasible for use with our generators. We will conduct life cycle emissions analyses of the potential clean fuels prior to committing to their use. In any case, our plan is to focus on renewables and storage to eliminate the need to run the plants for energy. This means that these re-tooled units will be used only during times when they are necessary to support reliability and keep the lights on. This will reduce their use by about 90% compared to today. For those limited hours each year when these plants are still needed, we plan to use renewable fuels such as renewable natural gas and biodiesel as transitional fuels until clean fuels such as green hydrogen become more available and more affordable.

In addition to exploring the use of clean fuels, we intend to conduct research into other new technologies that could ultimately allow us to retire some or all of our thermal fleet. We plan to study options for long duration storage, vehicle to grid technology and the use of virtual power plants. Each of these technologies has the potential to help SMUD reduce the need and use of our thermal assets. We intend to maximize the use of these types of resources once we prove they are a safe and cost-effective way to maintain reliability of the system

### **3. Study the potential retirement of Carson, Procter&Gamble and Cosumnes prior to executing re-tooling strategy**

Prior to making any decision on whether to re-tool or retire the remaining plants, SMUD will conduct detailed reliability and economic analysis to determine all feasible, reliable



and cost-effective resources available that could reduce or eliminate the need for the plants. All feasible, reliable and cost-effective options will be pursued to both reduce our greenhouse footprint and limit our need for fossil fuel based generation resources.

#### **4. The 2030 Zero Carbon Plan is flexible and will consider a variety of technologies**

SMUD will continue to research or expand several additional zero carbon technologies beyond those specifically listed in the Plan. Among the resources to be considered are concentrating solar power, large scale thermal storage, microgrids and fuel cells. As stated in the 2030 Zero Carbon Plan, we believe flexibility is important. The Plan will be adjusted as we research or determine how these and other technologies may play a role in helping us reach zero carbon emissions without compromising reliability or affordability. In addition, as we progress with implementation the exact timing, size, location and types of resource additions we will leverage post 2025 will become more defined.

#### **5. Maximize the value of SMUD's existing hydro facilities in the Upper American River Project (UARP).**

We wish to clarify that in implementing the 2030 Zero Carbon plan, we will

- seek to optimize the operations of our hydro system to facilitate the integration of renewable resources within our service territory for both grid-scale and behind-the-meter resources
- examine opportunities to pursue additional pumped storage or similar options within the existing physical boundaries of the UARP system

#### **6. Behind-the-meter resources and virtual net metering**

SMUD has a long history of supporting rooftop solar and other distributed resources. We see rooftop solar, behind-the-meter battery storage and other distributed energy resources as important resources in our 2030 Zero Carbon Plan. As highlighted in the Plan, we expect rooftop solar resources to grow from about 240MW today to as much as 500-750MW by 2030 and behind-the-meter batteries to reach 50-250 MW by 2030. The Plan calls for piloting, proving and scaling new technologies and business models that utilize customer assets to create virtual power plants, vehicle-to-grid applications and other flexible demand resources. As these programs are developed, they will be designed to offer benefits for the customer as well as for the grid.

The tariffs at which SMUD will buy and sell power to customers with rooftop solar and storage, play an important role in customers' decisions to invest in these technologies. However, tariff design and compensation levels for these resources are handled through our normal rate setting process that includes extensive stakeholder and public outreach. In addition, SMUD intends to offer a virtual net energy metering (or VNEM) program for income-qualified customers in the next rate setting process.

# Exhibit to Agenda Item #2

Accept SMUD's **2030 Zero Carbon Plan** with the clarifications made in response to public comments.

Special Board of Directors Meeting

Wednesday, April 28, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Why take action toward zero carbon

SMUD, and regional agencies recognize that we're facing a climate crisis and must act.

American Lung Association gives the region an **"F"** for air quality.\*

Rising temperatures have an adverse impact on the economy.

Regional air quality is a serious concern.

Local childhood asthma rates are about **30%** higher than the national average.\*\*

Jobs and inclusive community development.

Opportunity for collaboration to strengthen our regional economy.

Reduce droughts, wildfires and severe weather.

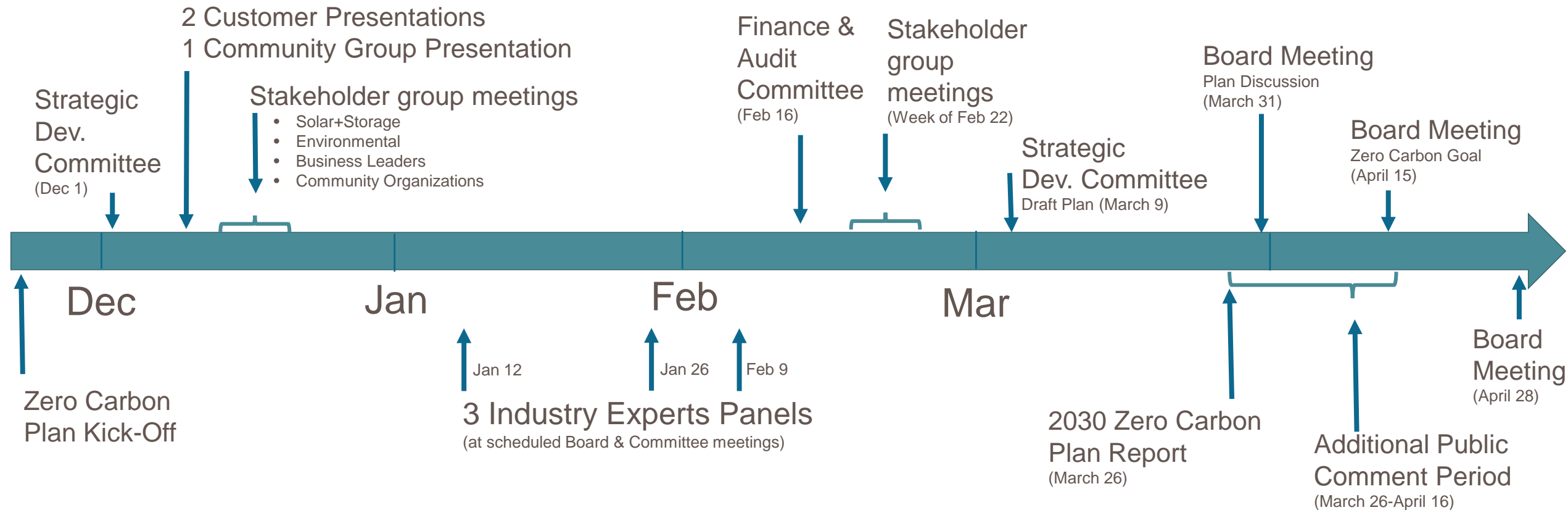
Improved health and regional air quality.

Attract innovation and investments to the region.

Address environmental inequities.



# The development of the 2030 Zero Carbon Plan





# Extensive outreach & engagement



## 7 stakeholder workshops

- 270 attendees (Dec. 2020 & Feb. 2021)



## 3 Customer & Community meetings

- 400 customers
- 336 surveys completed (Dec. 2020)



## 3 expert panel discussions @ Board Committee meetings

- 11 experts



## smud.org/ZeroCarbon & ZeroCarbon@smud.org

- FAQs
- Meeting recordings
- Opt-in for updates
- Video
- Email for feedback



## Listserv notification emails

- Proactively customer notification of upcoming zero carbon meetings



## Presentations

- External presentations by Board members, CEO & other key staff



## CEO communications

- Video blogs
- All hands employee meeting
- Workgroup meetings



## Employee resources

- SharePoint site
- Talking points
- 2 Brown bag learning sessions
- 15+ Intranet news stories & updates



## Innovation leadership

- Innovation Leadership Team
- Call for employees' innovative ideas
- Centralized hub for idea vetting



## Tailored workgroup presentations

- Project team leads @ staff roundtables
- Q&A session



## 7 Board & Committee meetings

(Dec. 2020 – March 2021)



## 3-week public comment period

on draft 2030 Zero Carbon Plan





# Flexible pathway to zero carbon





# Summary of Public Comments

48 public comments received during March 26 – April 16

## Our Community

- **9 comments** encouraging education, outreach, marketing, and highlighting value of partnerships
- **11 comments** asked us to continue prioritizing equity

## Technology, SMUD Standards, or Programmatic Suggestions

- **12 comments** proposed technologies or changes to SMUD standards or programs

## Reliability and Cost

- **4 comments** stressed need to maintain reliability and highlighted risks of wildfires and risks to resilience of the system
- **11 comments** expressed concern over cost impacts and potential impact on rates

## Electrification

- **15 comments** encouraging acceleration of electrification goals and requesting equipment to be included in plan

## Solar and Storage

- **14 comments** on solar resources, mainly requesting continued strong support for rooftop solar as part of the Plan
- **4 comments** specifically mentioned VNEM as a solution for some customers, especially low income and multi-family residences
- **6 comments** encouraged storage to play a larger role in the Plan

## Thermal Resources, Retooling, and Retirement

- **9 comments** requested clarity on our natural gas generation repurposing and plant retirements
- **10 comments** focused on clean fuels, requesting clarity on use of biofuels and recommending limited or transitional use, and expressing support for green hydrogen



# Public comments



**350**  
sacramento



"We at 350 Sacramento and the undersigned signatories are excited to support SMUD's 2030 Carbon Zero Plan's expansion of new renewables, storage capacity, distributive resources, and emerging technologies. The Plan represents a monumental effort for SMUD and an inspiring example for the electric utility industry nationally."



"The Sierra Club is very supportive of SMUD's efforts; we are especially pleased with the SMUD goal of zero carbon as opposed to net zero carbon. ...We look forward to working with you in implementing an aggressive zero-carbon plan that meets the moment this climate crisis demands, and maintains affordability and reliability."

"We applaud SMUD's leadership to accelerate the elimination of greenhouse gas emissions from your power portfolio. This leadership is exactly the type of bold accountability and direction that we need to achieve our goal for carbon neutrality."



Mayor's office

"The Sacramento Climate Coalition, a group representing 34 organizations in the Greater Sacramento area, would like to applaud, once again, SMUD's commitment to preserving the planet as we know it for our children and grandchildren. Your leadership in this area is outstanding. Thank you."



"The Coalition for Clean Air appreciates your commitment to reaching zero carbon by 2030. This is a thoughtful plan, combining a strong **commitment to decarbonization with the practical necessity of keeping costs low for customers.**"

National Fuel Cell  
Research Center  
(at UC Irvine)

"The NFCRC greatly appreciates the bold vision laid out by SMUD to reach zero carbon emissions in our power supply by 2030."





# Clarifications for the 2030 Zero Carbon Plan

**Flexibility is key – our 2030 Zero Carbon Plan is a living plan that will be updated and adjusted regularly**

## Clarifications:

### **1. Study and prioritize retirement of McClellan in 2024 and Campbell in 2025**

- Detailed reliability studies to confirm feasibility and priority of retirements at target dates

### **2. Eliminate the use of fossil fuels as soon as possible but no later than 2030.**

- Intent to retire all thermal plants as soon as possible or repurpose for clean fuels such as green hydrogen
- Pursue biofuels as transitional fuel until long term clean fuel options identified
- Research green hydrogen, long duration storage, VPPs and other technologies that reduce or eliminate the need for our thermal plants



# Clarifications for the 2030 Zero Carbon Plan - Continued

## Clarifications:

### **3. Study the potential retirement of Carson, Procter&Gamble and Cosumnes prior to executing re-tooling strategy**

- Detailed reliability and economic analysis to determine all feasible, reliable and cost-effective resources available that could reduce or eliminate the need for the plants

### **4. The 2030 Zero Carbon Plan is flexible and will consider a variety of technologies**

- Examples: Concentrating solar power, large scale thermal storage, microgrids and fuel cells
- As implementation progresses, the timing, size, location and types of resources selected will become clear.

### **5. Maximize the value of SMUD's existing hydro facilities in the Upper American River Project (UARP).**

- Examine pumped-storage within existing facilities and optimize operations



# Clarifications for the 2030 Zero Carbon Plan - Continued

## Clarifications:

### 6. Behind-the-meter resources and virtual net metering

- Rooftop solar and storage are very important in the Plan along with other distributed resources
- Tariffs play an important role in customer investment decisions and are considered in our normal rate setting process
- VNEM program for low income customers will be discussed during the next rate process



# Collaborate for an inclusive zero carbon economy



## Policy-makers & regulators

- Support beneficial climate policy and legislation
- Remove barriers for electrification
- Support funding for zero carbon innovation
- Collaborate and generate support for grants and regional investments in zero carbon
- Help attract zero carbon investments
- Share SMUD goals with constituents



## Private sector

- Catalyze regional innovation
- Create an international hub for new investment in the Sacramento region
- Explore co-development, test technology and seek funding
- Participate in programs to help manage energy and find clean business solutions
- Install EV charging for employees and fleets



## Community & the region

- Align priorities and resources for maximum impact
- Create a vibrant ecosystem to attract business investment
- Advance inclusive economic development
- Develop inclusive workforce of the future



## Customers

- Go electric with SMUD incentives and rebates
- Invest in rooftop solar + storage
- Participate in clean energy programs such as Greenergy and Shade Trees
- Participate in SMUD's future zero carbon workshops, pilots and programs
- Weatherization, energy efficiency & electrification offerings for income-qualified customers



# What customers can do today

## Go electric



### Rebates up to \$3,000

- Electric vehicles
- Induction cooking
- Heat pump water heaters
- Heat pump HVAC
- All-electric buildings (smud.org/Rebates)

## Rooftop solar + storage



Solar education & evaluation for your home and battery storage incentives.

## Greenenergy



SMUD will meet up to 100% of your electricity needs with renewable and carbon-free energy.

## SMUDEnergyStore.com



Shop for energy-saving home upgrades at SMUD. See if you qualify for instant online rebates on smart thermostats and more.

## Free Shade Trees



Improve air quality and cool your home with free shade trees in partnership with the Sacramento Tree Foundation.

## Income-qualified offerings



- Discount rates
- Weatherization
- Energy efficiency
- Electrification
- Payment arrangements
- Home energy assistance program

- Access free educational classes and videos for students, teachers, residents & businesses.
- Access rebates, financing & integrated design solutions for businesses.

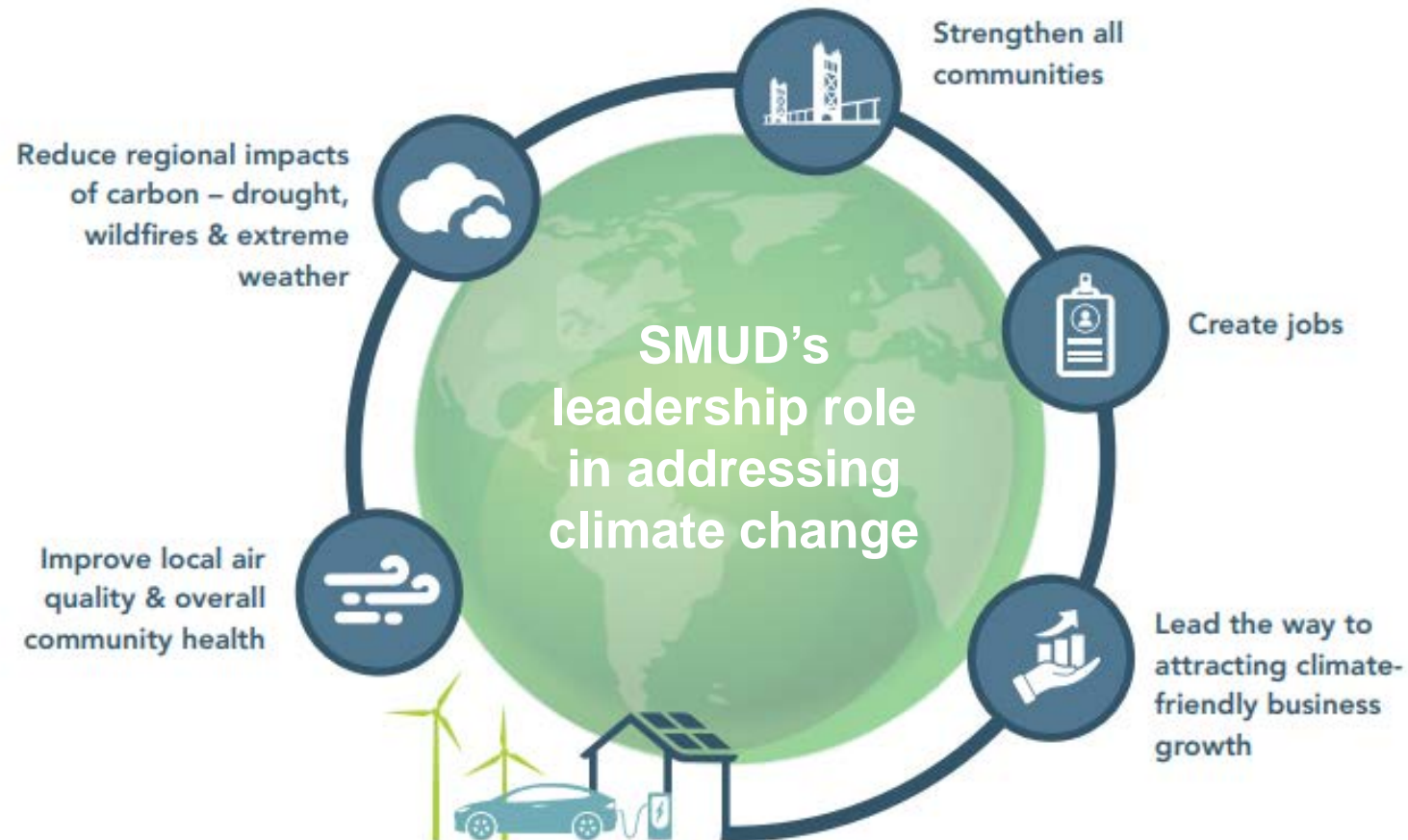
- Use SMUD's tools and tips to reduce energy use during peak times when energy costs the most.
- Manage your energy usage through MyAccount on smud.org or the SMUD mobile app.

**+ more at smud.org**

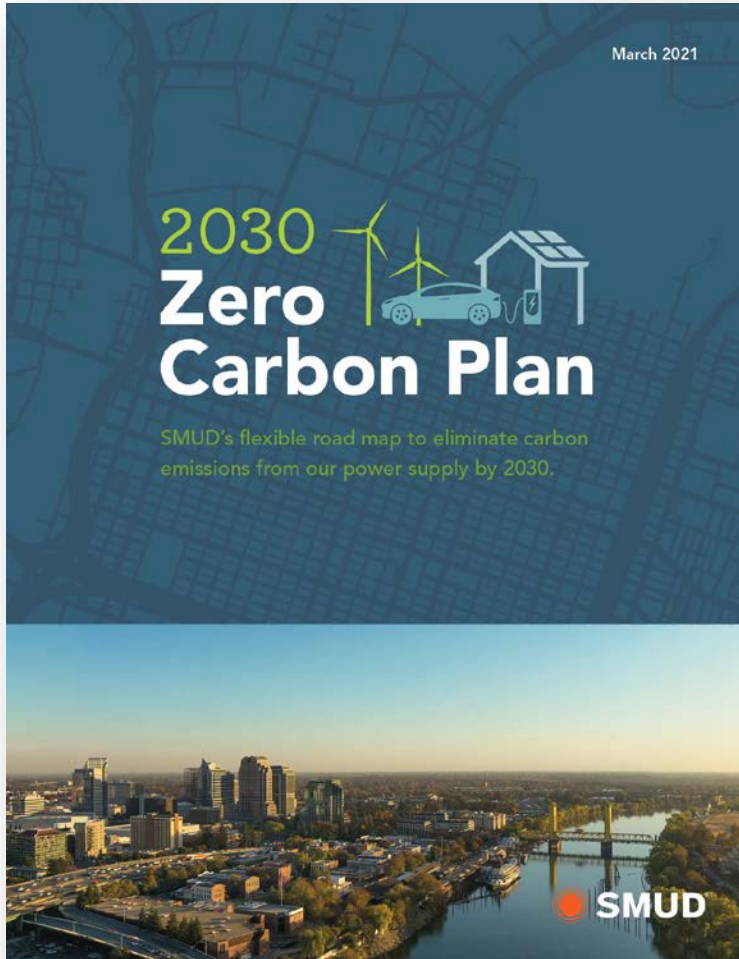


# Zero carbon: Broad and inclusive benefits

Together, we can transform into a model clean region.



# Next steps



- **Implementation starts immediately including continued public information, meetings and outreach**
- **Annual update and adjustment of the Plan**
  - The Plan is a living document that will be adjusted based on new information and results as we progress to 2030

**Website:**  [smud.org/ZeroCarbon](https://smud.org/ZeroCarbon)

**Email:**  [ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org)



# Questions?





**From:** [Laura Lewis](#)  
**To:** [Scott Martin](#); [Olof Bystrom](#); [Toni Stelling](#)  
**Subject:** FW: [EXTERNAL] Letter for inclusion in SMUD pkt 4.28.2021  
**Date:** Monday, April 26, 2021 1:38:20 PM

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**From:** Sacramento Sierra Club <[sacramentosierraclub@gmail.com](mailto:sacramentosierraclub@gmail.com)>  
**Sent:** Monday, April 26, 2021 12:35 PM  
**To:** Zero Carbon <[ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org)>  
**Cc:** Scott Martin <[Scott.Martin@smud.org](mailto:Scott.Martin@smud.org)>; Olof Bystrom <[Olof.Bystrom@smud.org](mailto:Olof.Bystrom@smud.org)>; Cara Chatfield <[Cara.Chatfield@smud.org](mailto:Cara.Chatfield@smud.org)>; Rachel Huang <[Rachel.Huang@smud.org](mailto:Rachel.Huang@smud.org)>; Ross Gould <[Ross.Gould@smud.org](mailto:Ross.Gould@smud.org)>; [luis.amezcua@sierraclub.org](mailto:luis.amezcua@sierraclub.org)  
**Subject:** [EXTERNAL] Letter for inclusion in SMUD pkt 4.28.2021

**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.

Please include the attached letter of support from the Sierra Club for the carbon-zero plan that will be presented to the Board at the upcoming meeting.

Thank you very much for all of your time and effort. We very much appreciate the inclusion of the material we requested!

Barbara Leary, Chairperson

**Sierra Club Sacramento Group**

909 12th Street, Suite 202, Sacramento, CA 95818

[www.sierraclub.org/mother-lode/sacramento](http://www.sierraclub.org/mother-lode/sacramento)

[sacramentosierraclub@gmail.com](mailto:sacramentosierraclub@gmail.com)

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April 26, 2021

SMUD Board of Directors, President Nancy Bui-Thompson, Vice-President Brandon Rose, Gregg Fishman, Rosanna Herber, Rob Kerth, Heidi Sanborn, and Dave Tamayo  
Scott Martin, Interim Chief Grid Strategy and Operations Officer  
Olof Bystrom, Ph.D., Manager, Resource Strategy

Sacramento Municipal Utility District  
P.O. Box 15830  
Sacramento, CA 95852-0830

Sent via email: [ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org)

**RE: Sierra Club's Final Comments on 2030 Zero Carbon Plan**

This letter is to supplement Sierra Club's comments submitted to the Sacramento Municipal Utility District ("SMUD") on April 13, 2021. Since that letter was submitted, we had the opportunity to meet with staff to review the concerns we expressed in the letter. During our meeting our concerns were addressed to our satisfaction in entirety. Details of our discussion were provided to us via email by Olof Bystrom following our meeting. We understand that there will be an appendix to the final document to clarify areas of the plan with which we were concerned and are very grateful to Mr. Bystrom and staff for their time and effort in putting the final plan and additional material together.

We feel fully reassured that SMUD is working hard to accomplish the zero-carbon goal set forth in the Climate Emergency Declaration that the Board adopted and are especially pleased with the SMUD goal of zero-carbon as opposed to net zero-carbon.

We want SMUD to succeed and believe that the organization is creating what will be a model plan, an example for other utilities to follow, in setting and accomplishing a zero-emission model of operation while still maintaining affordable and reliable service.

Sincerely,

Luis Amezcua  
Senior Campaign Representative  
My Generation Campaign

Barbara Leary  
Chair, Sacramento Group  
Motherlode Chapter

**From:** [Olof Bystrom](#)  
**To:** [Toni Stelling](#)  
**Subject:** FW: [EXTERNAL] SMUD 2030 Carbon Plan -Smud April 14 Comment letter.pdf  
**Date:** Wednesday, April 14, 2021 12:14:48 PM

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**From:** Harold Thomas <[hthomasattorney@icloud.com](mailto:hthomasattorney@icloud.com)>  
**Sent:** Wednesday, April 14, 2021 9:47 AM  
**To:** Zero Carbon <[ZeroCarbon@smud.org](mailto:ZeroCarbon@smud.org)>  
**Subject:** [EXTERNAL] SMUD 2030 Carbon Plan -Smud April 14 Comment letter.pdf

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Please include this letter in the public record and have it read at the scheduled April 28, 2021 Board of Director's meeting. Thank you s/ Harold M. Thomas

April 14, 2021

## COMMENTS SMUD 2030 PLAN – Harold M. Thomas

The proposed 2030 Goal of reaching zero carbon is significant and important in our efforts to slow global warming. The SMUD staff and Board are to be encouraged in working to manage the existential threat of climate change due to excessive emissions of GHG's. My comments beyond those in this document, adopt by reference the consistent observations and detailed comments of Rick Codina, a utility expert who has commented on the 2030 Plan

**Generally-** This plan is a vast improvement from the 2018 IRP which I and others commented upon in several open meetings. However, it is clear that SMUD staff continues to see roof top and community owned solar as a threat to the rate base. Thus, the report seeks to enlarge economic contributions from "utility scale" solar electric and storage and lessen the fiscal and policy incentives for customer owned electric power. While one can agree that utility owned storage has both safety and efficiency benefits leading to such major public works as battery farms and pumped storage, roof top customer owned and community developed solar is the lowest environmental cost in both direct and indirect costs. Cost that must include capital, operational, and carbon footprint. Why should SMUD finance its improvements in the national capital markets when its own citizens are willing to pay the tariff for clean electric power on their roofs.

### **Specific Comments**

#### **Biomass RNG and Biogas- P 81-- 290-900 MW of power supply**

While RNG and Biogas are appropriate fuels to collect and burn for electric power, biomass combustion is highly limited due to poor quality and contaminated wood fuels found fueling existing Central Valley biomass generators. Forest wood is increasingly used for agricultural compost and landscaping purposes leaving limited clean fuel forest resources. The plan needs to specifically project how much power is to be derived from Biomass compared to bio-gas and RNG.

As one of the lead litigators in a five county District Attorney investigation team reviewing the Covanta Corporation burning and disposal of contaminated fuels, we learned many facts not acknowledged by regulatory authorities. First, municipal wood waste, a major biomass fuel source, was consistently contaminated with various metals and plastics. Second, dioxin was a

frequent waste combustion by-product and found in power plant ash sent to compost and dairy facilities. SMUD runs the risk of superfund exposure as a user of power from contaminated fuels.

### **New Hydro Resources- p 84 --Pumped storage from existing reservoirs**

While the plan dismisses this option, (*In our experience, new hydro resources, including pumped hydro, are not likely to be built in California due to the cost, permitting challenges and environmental concerns.*), SMUD should revisit this option in light of a revised cost benefit analysis. Specifically, the competing costs of nominally less directly expensive power, is a false accounting when SMUD includes external environmental costs (both carbon footprint and external costs) of alternative power supplies.

In fact, wind from Wyoming and Nevada requires new or expanded right of ways over or through the Sierras. Solar electric purchased from “*other balancing authority areas*” (22,800 MW in the plan) does not include the external environmental costs to desert tortoise and San Joaquin Kit fox endangered habitats. To fairly compare power supply from pump storage, including its local environmental cost, to Southern California vendors, one must include both the carbon footprint and the externalized environmental cost of the Southern California “*other balancing authorities*” power.

### **Roof-Top and Community Solar -p 85**

While the plan states roof top and community solar is economically infeasible (*Rooftop solar was also considered as a proven clean technology. Capital costs to build or install these resources exceed three times the price of utility solar*), this analysis fails to calculate the capital contribution of the roof top panel owner. The 2030 plan should be revised to show an accurate cost per watt given customer capital contributions. Second, the cost analysis should be revised to reflect the lower carbon footprint of installing panels on an existing roof or parking lot. When an honest comprehensive accounting of costs is made, the conversion of agricultural lands and loss of wildlife habitat while not immediately borne by the utility are costs pushed on the public fisc and add significantly to the carbon footprint of the “*utility scale*” options. The plan needs to have a revised, more complete, and more honest cost and carbon foot print accounting prior to making decisions lest the final policy decisions are based on false cost comparisons.

President Bui-Thompson then turned to agenda item 3, 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, copies of which are attached to these minutes, from the following members of the public:

- Tuan Ngo
- Harold Thomas

Mr. Lau stated it was an exciting day, not just for SMUD, but for our entire region. He thanked the Board for their vision and foresight and for making it possible for SMUD to show the nation and the world how to be a leader – not just in decarbonizing – but how to do so in an inclusive way that ensures no communities are left behind. He shared his heartfelt thanks to SMUD staff, which has a history of setting game-changing goals and delivering on them, and he noted that is thanks to the tremendous expertise, hard work, dedication and creativity of staff, which is truly the best of the best. He stated he was excited to have our customers, community and other stakeholders, together on this journey. He closed by saying that together, we will get to zero and deliver a cleaner, safer and more just future for our kids and grandkids.

No further business appearing, President Bui-Thompson adjourned the meeting at 7:01 p.m.

Approved:

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President

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Secretary

**From:** [Carter Nelson](#)  
**To:** [Public Comment](#)  
**Cc:** [Erin Teague](#)  
**Subject:** [EXTERNAL] Agenda Item #2 Comment: Sacramento Association of REALTORS®  
**Date:** Wednesday, April 28, 2021 1:04:41 PM

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SMUD Board Members,

On behalf of the Sacramento Association of REALTORS® (SAR) and our 7,000+ members regionally, we again applaud SMUD for their efforts in developing this plan and we look forward to being a partner in bringing education to our membership and their clientele and practical solutions that work for customers.

Thank you,

Carter Nelson (She/Her)  
Government Affairs Coordinator  
Sacramento Association of REALTORS®  
2003 Howe Avenue, Sacramento, CA 95825  
Phone: (916) 437-1208  
Email: [cnelson@sacrealtor.org](mailto:cnelson@sacrealtor.org)

**From:** [coyote1@surewest.net](mailto:coyote1@surewest.net)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] Carbon Zero Plan  
**Date:** Wednesday, April 28, 2021 2:54:09 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.

We at 350 Sacramento would like to commend the SMUD Board for commissioning this comprehensive, milestone study to achieve carbon zero by 2030. We are thoroughly pleased with the excellent work produced by SMUD staff in identifying the appropriate actions and potential technical solutions to real carbon reduction. We would like to express appreciation in particular to Olof Bystrom and Scott Martin, who met with us, reviewed our comments and incorporated many of our suggestions in their points of Clarification which have been added to the Plan's original report. With this Plan's approval, this Board will have proven its commitment to leading our utility in reducing carbon and helping to safeguard upcoming generations from some of the ravages of climate change. Thank you.

Rick Codina, 350 Sacramento



**From:** [Ed Smeloff](#)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] SMUD's 2030 Zero Carbon Plan  
**Date:** Wednesday, April 28, 2021 3:31:16 PM

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**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

Vote Solar commends and congratulates the SMUD Board for initiating an inclusive process that has led you to this important decision to adopt a plan that will achieve zero carbon from the SMUD electric system by 2030. The SMUD staff has done a superb job in their analysis and their presentation of the work. Their enthusiasm for this work is plainly visible.

We are particularly pleased that the clarifications demonstrate that the SMUD staff is looking for ways to accelerate the closure of the fossil power plants that most directly impact disadvantaged communities in Sacramento. With your approval of the 2030 Zero Carbon Plan you will be moving forward into the implementation phase which will undoubtedly be challenging.

Thank you for your leadership in addressing the climate crisis in such a bold way.



**Ed Smeloff** | Senior Director, Grid Integration  
[ed@votesolar.org](mailto:ed@votesolar.org) | [707.677.2107](tel:707.677.2107)

**Vote Solar**  
Trinidad, CA  
[votesolar.org](https://votesolar.org)



**From:** [Peter Mackin](#)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] Carbon Zero Plan  
**Date:** Wednesday, April 28, 2021 4:18:34 PM

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**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 Sacramento Electric Vehicle Association (SacEV) would like to commend the SMUD Board for commissioning this comprehensive study to achieve carbon zero by 2030. SacEV is very pleased with the great work by SMUD staff to identify the appropriate actions and potential technical solutions to real carbon reduction. With this Plan's approval, the SMUD Board will have demonstrated its commitment to leading Sacramento's utility and the entire region in reducing carbon and helping to safeguard upcoming generations from impacts of climate change.

Regards,

Peter Mackin  
Lead Advisor, SacEV

**From:** [Tuan Ngo](#)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] Suggest Change to Usage Summary of SMUD Monthly Electric Bill  
**Date:** Thursday, April 22, 2021 9:07:56 AM

---

**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.

Honorable Chairman and Members of the Board,

My name is Tuan Ngo and I am a customer of SMUD. I know that SMUD encourages customers to conserve energy, thus I like to ask SMUD to provide us with easier tool to monitor our usage pattern, so we can look for way to save our energy consumption.

On the monthly electric bill, the electric usages are categorized into “This Bill Period”, “Last (month) Bill Period”, and “Same Bill Period Last Year”. This is a great tool for customers to monitor what is their usage. Unfortunately, these usages only include total KWh from SMUD. Thus for customers with solar panels, these values do not provide customer a true picture of their electric consumption because they inherently include solar electric generated, which depends on weather and the available sunlight.

I suggest that the Usage Summary include only the total energy consumption such as listed in “Electricity Charge” section: “Total KWh Used This Period”. This way we know exactly how much we use, and we can monitor and look for way to conserve energy.

Thank you for the opportunity to comment.

Tuan Ngo

P.S. I attached a picture of the Monthly Electric Bill with highlights on the items that I mentioned.

Power Outages: 1 (888) 456-7683

Page 1 of 2

**SMUD**  
P.O. Box 15830, Sacramento, CA 95852-0830  
smud.org

Location: [REDACTED]

Account Number: [REDACTED]  
Bill Issue Date: 03/26/21

Bill Period: 01/26/21 - 02/24/21 (30 Days)  
Cycle: 1511 Location Number: [REDACTED]  
Rate: [REDACTED]

Current Charges, Due 03/25/21: \$22.25  
**Total Amount Due: \$22.25**

**Usage Summary**

This Bill Period	Last Bill Period	Same Bill Period Last Year	Usage Difference
\$22.25	\$22.34	\$21.05	↑ 4% Higher than last year

**Meter Summary**

Meter	Usage	Type	Monitor your account on smud.org/myaccount
[REDACTED]	[REDACTED]	kWh from SMUD kWh to SMUD from PV Total PV Generation	

**Electricity Charges**

Item	Usage	Type	Rate	Amount
Total kWh Used This Period	[REDACTED]			
kWh From SMUD Less kWh To SMUD Equals Billed kWh Of Previous Net Excess PV Gen Carryover		kWh		
Base Usage		Winter kWh @	0.125400	[REDACTED]
New Cumulative Net Energy Charges/Credits (excluding payments)				
System Infrastructure Fixed Charge*				22.25
<b>A) TOTAL ELECTRIC SERVICE CHARGES/CREDITS</b>				<b>\$22.25</b>
A.1. Unbilled cumulative electric charges due at settlement in January 2022	[REDACTED]			

Sent from [Mail](#) for Windows 10



Virus-free. [www.avast.com](http://www.avast.com)

**From:** [Harold Thomas](#)  
**To:** [Public Comment](#)  
**Subject:** [EXTERNAL] SMUD 2030  
**Date:** Wednesday, April 28, 2021 6:11:24 PM

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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.

We are making good progress in plans. Now we focus on actions. We have come a long way from the 2018 IRP. Thank you and we will watch carefully on the details. Hope is in short supply in climate politics. Now we will work together and fill in the details which is where the future lies.... s/ Hal Thomas



SSS No.

E,S,RES 21-05

# BOARD AGENDA ITEM

## STAFFING SUMMARY SHEET

Committee Meeting & Date

Policy, May 12, 2021

Board Meeting Date

May 20, 2021

TO					TO				
1.	Gary King				6.				
2.	Jennifer Davidson				7.				
3.	Stephen Clemons				8.				
4.					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				DEPARTMENT				MAIL STOP	EXT.	DATE SENT	
Patrick Durham				Workforce Enterprise Services				B203	6327	04/20/2021	

### NARRATIVE:

**Requested Action:** Adopt a resolution declaring the Gerle Meadows property is surplus land and, if sold to the United States Forest Service, exempt surplus land.

**Summary:** Pursuant to the Surplus Land Act (AB 1486), SMUD Real Estate is recommending the sale of the vacant parcel, referred to as Gerle Meadows, that is 319.61 acres in El Dorado County. SMUD has determined that it does not have a current need or future use for the property. SMUD Real Estate will request the Board to declare the land as surplus properly for its proper disposal.

**Board Policy:** Board-Staff Linkage BL-10, Delegation of the General Manager with Respect to Real and Personal Property.  
*(Number & Title)*

**Benefits:** Declaration of the Gerle Meadows property by the Board of Directors as surplus land to support the sale of the 319-acre property, meeting the compliance requirements of the Surplus Land Act, and revenue generated from the land sale.

**Cost/Budgeted:** None

**Alternatives:** Reject the Gerle Meadows property as surplus land.

**Affected Parties:** Board of Directors, SMUD Executives, and SMUD Real Estate

**Coordination:** Organization-wide

**Presenter:** Patrick Durham, Director of Environmental and Real Estate Services

### Additional Links:

SUBJECT

Gerle Meadows Property

ITEM NO. (FOR LEGAL USE ONLY)

6

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

**RESOLUTION NO. \_\_\_\_\_**

**WHEREAS**, Assembly Bill 1486 (AB 1486), effective January 1, 2020, amended the **California Surplus Land Act** to make many technical changes, one being to define surplus land only as “land owned in fee simple by any local agency for which the local agency’s governing body takes formal action in a regular public meeting declaring that the land is surplus and is not necessary for the agency’s use”; and

**WHEREAS**, the **Gerle Meadows** property is a vacant parcel of SMUD-owned land consisting of 319.61 acres within the boundaries of the Eldorado National Forest and located off of Wentworth Springs Road in El Dorado County; and

**WHEREAS**, SMUD purchased the **Gerle Meadows** property in April 2010 to exchange it with the **United States Forest Service** for land needed for the since-abandoned **Iowa Hill Project**; and

**WHEREAS**, staff has determined the **Gerle Meadows** property is not needed for any other SMUD business purpose; and

**WHEREAS**, land sold to federal agencies for their own use is exempt from the **California Surplus Land Act** (as exempt surplus land); and

**WHEREAS**, staff recommends the **Gerle Meadows** property be declared surplus land; **NOW, THEREFORE**,

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

**Section 1.** That this Board declares the **Gerle Meadows** property is surplus land, and is exempt surplus land if sold to the **United States Forest Service**.





SSS No. HRS 21-005

# BOARD AGENDA ITEM

## STAFFING SUMMARY SHEET

Policy Committee Meeting Date

May 12, 2021

Board Meeting Date

May 20, 2021

TO					TO				
1.	Claire Rogers				6.				
2.	Gary King				7.				
3.	Stephen Clemons				8.				
4.	Jennifer Davidson				9.	Legal			
5.					10.	CEO & General Manager			

<b>Consent Calendar</b>		<b>Yes</b>		<b>No</b> <i>If no, schedule a dry run presentation.</i>	<b>Budgeted</b>		<b>Yes</b>		<b>No</b> <i>(If no, explain in Cost/Budgeted section.)</i>
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FROM (IPR)			DEPARTMENT				MAIL STOP	EXT.	DATE SENT
Laurie Rodriguez			Human Resources, Diversity & Inclusion				B251	5628	4/21/21

**NARRATIVE:**

**Requested Action:** Accept the monitoring report for Strategic Direction SD-12, Ethics.

**Summary:** This presentation provides the Board with the annual monitoring of SD-12, Ethics and confirms that SMUD is in compliance.

**Board Policy:** SD-12, Ethics  
*(Number & Title)*

**Benefits:** Provide the Directors and Executive Staff with an overview of the Board Policy and give them an opportunity to ask questions, make corrections, additions or changes, if necessary.

**Cost/Budgeted:** N/A

**Alternatives:** N/A

**Affected Parties:** All SMUD employees and Contractors

**Coordination:** Human Resources, Diversity & Inclusion

**Presenter:** Laurie Rodriguez, Human Resources, Diversity & Inclusion Director

**Additional Links:**

SUBJECT

SD-12, Ethics Board 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:** May 5, 2021

**FROM:** Claire Rogers *CR 5/5/21*

**SUBJECT: Audit Report No. 28007403  
Board Monitoring Report; SD-12: Ethics**

Audit and Quality Services (AQS) received the SD-12 *Ethics* 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-12, Ethics



### 1. Background

Strategic Direction 12 states that:

Maintaining the public trust and confidence in the integrity and ethical conduct of the Board and SMUD employees is a core value. Therefore, to ensure the public interest is paramount in all official conduct, the Board shall adopt and update, as necessary: a Conflict of Interest Code as required by State law. SMUD shall also maintain and enforce a code of conduct applicable to all employees.

Among other things the code of conduct shall:

- a) Require high ethical standards in all aspects of official conduct;
- b) Establish clear guidelines for ethical standards and conduct by setting forth those acts that may be incompatible with the best interests of SMUD and the public;
- c) Require disclosure and reporting of potential conflicts of interest; and
- d) Provide a process for (i) reporting suspected violations of the code of conduct and policies through multiple channels, including an anonymous hotline, and (ii) investigating suspected violations.

### 2. Executive Summary

**SMUD is in compliance with the requirements of SD-12.**

Strategic Direction 12 requires SMUD to have a process to report potential conflicts of interest and a process for reporting and investigating suspected violations of the Code of Conduct. Compliance is foundational for acting in the best interests of our customers and community. Several SMUD policies and procedures support the requirement of high ethical standards in all aspects of official conduct.

SD Requirement	Supporting Process/Procedure
a) Require high ethical standards	SMUD's Ethics policy (AP 05.02.03) sets the requirements and expectations for ethical behavior, including communication, training and other resources.

b) Establish clear guidelines for ethical standards and conduct	SMUD's Code of Business Ethics and Employee Conduct were updated and approved by the CEO & General Manager in 2020. SMUD's Ethics procedure (MP 05.02.03.100) was adopted in 2008 and updated in January 2021. SMUD's Conflict of Interest policy (AP 05.02.02) includes Board revisions adopted in 2018 and was approved by the FPPC (Fair Political Practices Commission) in 2018.
c) Require disclosure and reporting potential conflicts of interest statements	Notice of filing requirements was sent to employees in March. 100% of the annual conflict of interest statements were received by the time this report was finalized.
d) Provide a process for reporting and investigating suspected violations of the code of ethics	SMUD's Whistleblower Anti-Retaliation policy (AP 05.01.03) was approved in 2014. SMUD's Complaint Process Policy (AP 05.01.04) was approved in 2006 and updated in October 2018 (administrative update only). SMUD's Ethics and Compliance Hotline has been in place since 2008.

### 3. Additional Supporting Information

#### Ethics Policy

In accordance with Board Policy SD-12 Ethics, SMUD developed the Code of Business Ethics and Employee Conduct, approved by the CEO & General Manager in 2013. This document supplements SMUD's State-law mandated Conflict of Interest Code and provides an easy-to-read explanation of SMUD's values and expectations for employee behavior. It also identifies various staff resources to obtain further guidance, as well as alternative methods to report suspected violations of SMUD's Code of Business Ethics. The Code provides a framework for how employees should act toward customers, vendors and each other. It also emphasizes that as a publicly-owned utility, SMUD and its employees must adhere to the highest ethical standards.

All new employees receive a copy of SMUD's Code of Business Ethics prior to or during new employee orientation, and are required to review and submit a signed acknowledgement to Human Resources, Diversity & Inclusion (HRD&I) within 30 days of orientation. In addition, all contractors with unescorted access receive a copy of the Code when their background check is conducted. HRD&I verifies Code acknowledgements on a quarterly basis to ensure signed acknowledgments are received from all new employees and contractors.

## **Ethics Training**

Ethics training is a mandatory requirement for all SMUD employees. They are required to complete the training every 2 years on a fixed rotating schedule. Returning employees have one year for completion while new employees and newly promoted leaders are required to take Ethics training within 90 days of coming to their role. Course completion is tracked using SMUD's Learning Management System (LMS) and reported as part of SMUD's mandatory training statistics.

For the 2019-2020 course cycle, a total of 2,172 active employees were expected to complete this training within 2019. Results show that 2,167 employees completed it in 2019, resulting in a 99.7% completion rate. Five employees did not complete due to military leave, separations and retirements. A total of 127 employees were expected to complete this training in 2020. Results show 125 completed it in 2020, resulting in a 98% completion rate. Two employees did not complete the training before the 2021 training replaced the 2020 assignment.

## **Disclosure and Reporting of Potential Conflicts of Interest**

The Political Reform Act (Cal. Gov. Code §§ 81000, et seq.) requires certain government officials and employees to publicly disclose certain financial information relevant to the scope of decision-making for their positions with SMUD.

To maintain compliance, all employees in positions designated by the SMUD Board must complete and submit an annual Statement of Economic Interests, FPPC Form 700 (Conflict of Interest Statement). Incumbents of designated positions shall file an Assuming Office Statement within 30 days of starting their employment or beginning the new position. Employees in designated positions who leave SMUD shall file Leaving Office Statements within 30 days of their final dates of employment.

We are pleased to share that this is now an electronic process here at SMUD. The annual Conflict of Interest Statements are public documents filed with Corporate Records or in the designated record repository. HRD&I sent financial disclosure materials electronically to designated employees in March and successfully met the FPPC filing deadline of April 1. At the time of this report, 100% percent of the annual Conflict of Interest Statements from SMUD officials and designated employees were received. In conjunction with SMUD's Ethics Officer, HRD&I staff follows up to ensure total compliance. In the rare event that full compliance is not achieved, SMUD is obligated to report violations to the FPPC for enforcement. This has occurred only two times in the last decade.

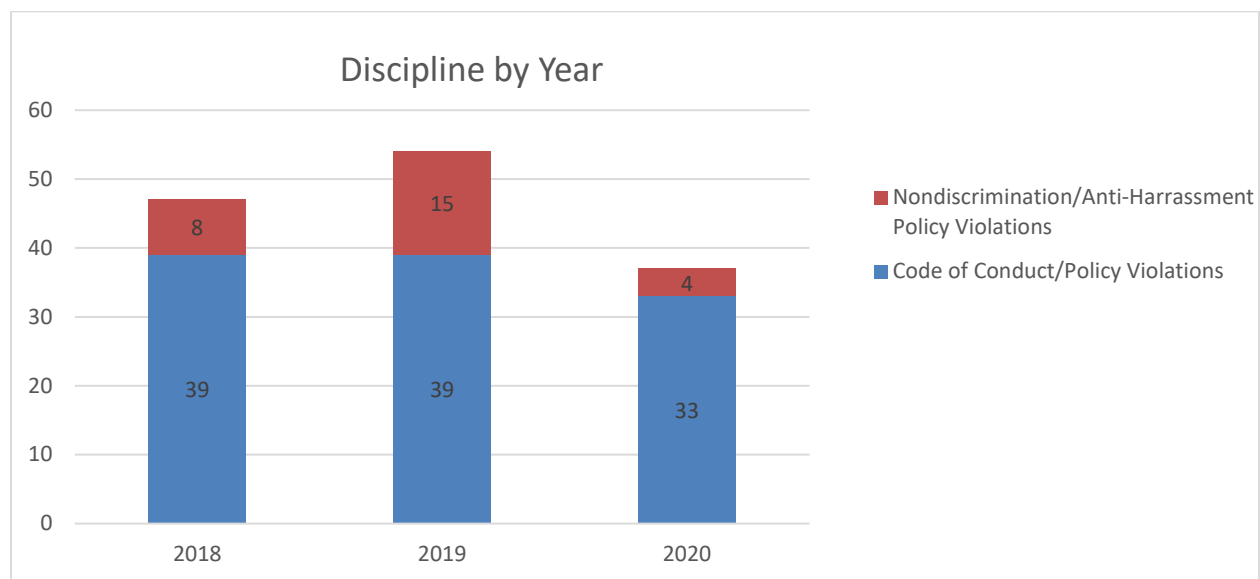
## **Process for Reporting and Investigating Suspected Violations**

SMUD holds its employees to a higher standard than that required by law and is committed to providing a work environment in which all individuals are treated with dignity and respect. SMUD encourages employees to bring concerns about potential legal violations or violations of SMUD policies to the attention of a SMUD leader. All SMUD leaders are required to immediately report all complaints they receive regarding suspected policy violations to the Fair Employment Office. An employee who believes that they are unable to make a complaint through their management reporting line may report complaints directly to the Fair Employment Office, Labor Relations, Internal Auditor's or General Counsel's Office. Additionally, SMUD has contracted with Navex Global Compliance since November 2008 to operate an anonymous Ethics and Compliance Hotline. This hotline can be used by employees to file complaints anonymously should they so

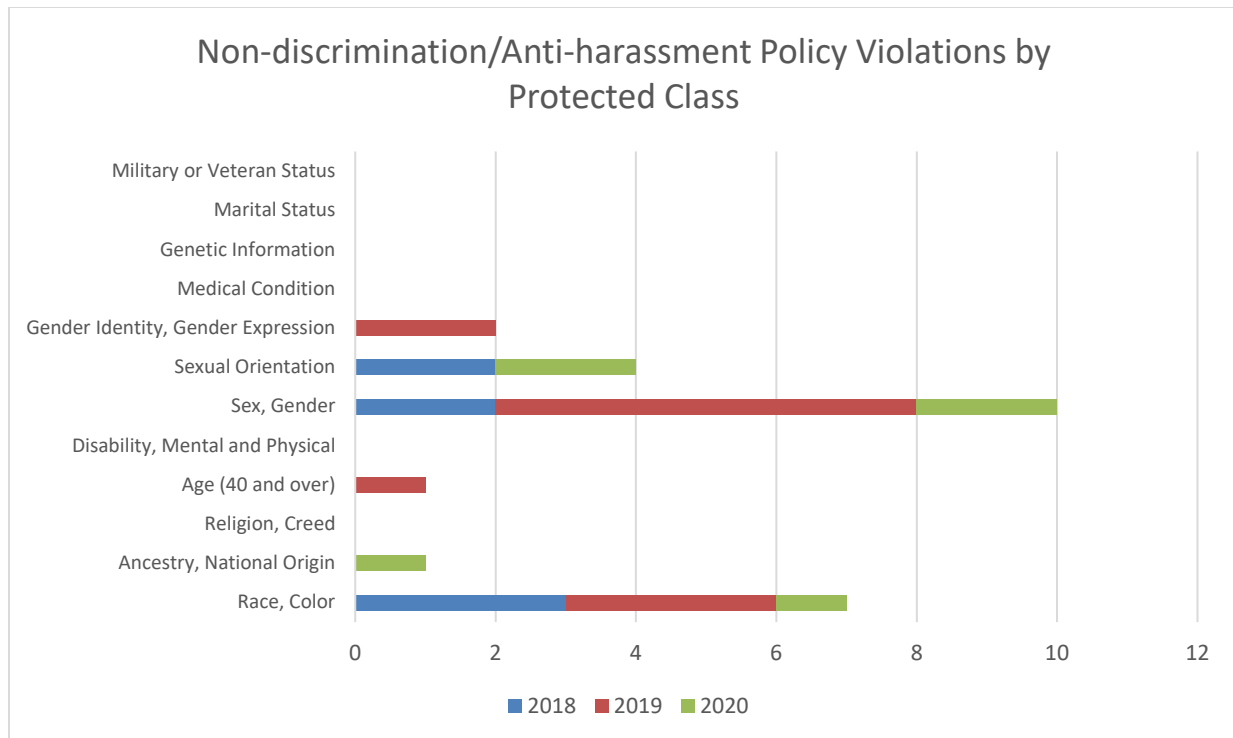
choose, either online or by calling Navex Global Compliance directly. As part of SMUD's Complaint Process and Whistleblower Anti-Retaliation policies, a Whistleblower Committee was established to review and act, when appropriate, on hotline/whistleblower complaints. The committee is comprised of representatives from the General Counsel's office, Audit & Quality Services and HRD&I, including members of our Fair Employment Office and Labor Relations team.

In addition to investigating potential violations of SMUD's Nondiscrimination, Anti-Harassment and Non-Retaliation Policy (AP 05.01.01) and Code of Ethics, Labor Relations and Fair Employment analysts also advise, consult with and support leaders on recommended action and coaching to address problematic behaviors and attitudes among the workforce that are not necessarily prohibited by law. This includes working with a leaders' leader or senior leadership when improved leadership skills would benefit relationships. These proactive measures play a critical role in a culture where all employees are respected and valued.

The following chart illustrates discipline issued to employees between 2018-2020. Summarized below are the disciplines issued for violations of SMUD's Nondiscrimination, Anti-Harassment and Non-Retaliation Policy (AP 05.01.01) as well as discipline for misconduct/policy violations under SMUD's Positive Discipline Policy (AP 05.02.09) including dishonesty, bullying, discourteous behavior, unprofessional conduct, driving policy violations, insubordination, conflicts of interest and unethical behavior. The below reporting does *not* include discipline related to safety incidents (e.g. preventable vehicle accidents), attendance (tardiness and/or absences) or work performance unless there was a conduct component covered by SMUD's Code of Business Ethics & Employee Conduct, such as willful negligence or dishonesty.



The chart shown next indicates violations of SMUD's Nondiscrimination, Anti-Harassment and Non-Retaliation Policy (AP 05.01.01) as they relate to protected categories for FEO investigations that occurred in the past three years.



#### 4. Challenges

Completing training and obtaining necessary documents can be a challenge for employees on any type of extended leave. Broad or anonymous complaints are sometimes filed without supporting and/or contact information to allow for follow-up and further investigation. We recognize there are opportunities to increase awareness of the integrity of the process and are looking at various ways to engage with employees to explore their concerns in this area.

#### 5. Recommendations

As reflected in this report, SMUD has achieved the goals set forth in SD-12 for maintaining the public trust and confidence in the integrity and ethical conduct of the Board and SMUD employees. The policies, guidelines, staff training and monitoring and reporting components have played a part in ensuring high ethical standards in all areas of conduct and in operations.

*It is recommended the Board accept the monitoring report for Strategic Direction 12.*

#### 6. Appendices

N/A



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-12, Ethics**, substantially in the form set forth in **Attachment \_\_\_\_\_** hereto and made a part hereof.



SSS No. HRS 21-004

# BOARD AGENDA ITEM

## STAFFING SUMMARY SHEET

Policy Committee Meeting Date

May 12, 2021

Board Meeting Date

May 20, 2021

TO					TO				
1.	Claire Rogers				6.				
2.	Gary King				7.				
3.	Stephen Clemons				8.				
4.	Jennifer Davidson				9.	Legal			
5.					10.	CEO & General Manager			

<b>Consent Calendar</b>		<b>Yes</b>		<b>No</b> <i>If no, schedule a dry run presentation.</i>	<b>Budgeted</b>		<b>Yes</b>		<b>No</b> <i>(If no, explain in Cost/Budgeted section.)</i>
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FROM (IPR)			DEPARTMENT				MAIL STOP	EXT.	DATE SENT
Laurie Rodriguez			Human Resources, Diversity & Inclusion				B251	5628	4/21/21

### NARRATIVE:

<b>Requested Action:</b>	Accept the monitoring report for Strategic Direction SD-8, Employee Relations.								
<b>Summary:</b>	This presentation provides the Board with the annual monitoring of SD-8, Employee Relations and confirms that SMUD is in compliance.								
<b>Board Policy:</b> <i>(Number &amp; Title)</i>	SD-8, Employee Relations								
<b>Benefits:</b>	Provide the Directors and Executive Staff with an overview of the Board Policy and give them an opportunity to ask questions, make corrections, additions or changes, if necessary.								
<b>Cost/Budgeted:</b>	N/A								
<b>Alternatives:</b>	N/A								
<b>Affected Parties:</b>	All SMUD employees								
<b>Coordination:</b>	Human Resources, Diversity & Inclusion								
<b>Presenter:</b>	Laurie Rodriguez, Human Resources, Diversity & Inclusion Director								

### Additional Links:

SUBJECT	SD-8, Employee Relations Board Monitoring Report	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:** May 5, 2021

**FROM:** Claire Rogers *CR 5/5/21*

**SUBJECT: Audit Report No. 28007402  
Board Monitoring Report; SD-08: Employee Relations**

Audit and Quality Services (AQS) received the SD-08 *Employee 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-8, Employee Relations



### 1. Background

Strategic Direction 8 (SD-8) states that:

Developing and maintaining a high quality, diverse and inclusive workplace that engages and inspires employees to commit to SMUD's purpose, vision and values is a core value of SMUD.

SMUD is committed to diversity and inclusion and will foster and support a workplace that values employees representing a variety of backgrounds, including but not limited to, race, ethnicity, gender, gender identification and/or expression, sexual orientation and identification, national origin, age, physical abilities, veteran status, socio-economic status, life experiences, talents, and thinking styles.

Therefore:

- a) SMUD shall attract and retain a highly qualified and diverse workforce.
- b) SMUD shall promote inclusion and diversity and engage its workforce in activities that demonstrate and support inclusion and diversity across the organization.
- c) SMUD shall engage its workforce in personal and professional development.
- d) SMUD's percentage of engaged employees as measured through the Engagement Index shall exceed 80%.
- e) SMUD shall use a broad mix of communication and outreach channels to ensure its recruitment activities reflect the diversity of the communities it serves.
- f) SMUD shall maintain and communicate written policies that define procedures and expectations for staff and provide for effective handling of grievances.
- g) Annually, and consistent with State and Federal law, the Board shall receive a report detailing the demographics and trends of the SMUD workforce, the available workforce, and the Sacramento region. The report shall also provide information on veterans as a part of SMUD's workforce.

### 2. Executive Summary

**SMUD is in full compliance with SD-8, Employee Relations.**

The 2020 fiscal year was significantly marked by much business disruption, as employees across the organization answered the call for innovation and quick response while addressing the COVID-19 pandemic. We're proud of not only maintaining our activities to attract, retain, develop, and engage our workforce, but also collaboratively working across the organization to solve for the many people challenges in 2020 as outlined in this report.

<b>SD Requirement</b>	<b>SD Support</b> (Program, Policy, Procedure or Initiative)	<b>Purpose</b>	<b>Outcome</b>	<b>Notes</b>
a)	Career Ambassador Program	Early outreach & connection with future pipeline (K-12, college, and community) to increase future workforce talent while simultaneously engaging employees	Reached 13,256 students and community members	As 51 career events were cancelled due to COVID-19, outreach decreased by 61% from 2019
	Shared Resource Program	Allocate underutilized employees to support business needs across the organization and in the local community	38 of 58 requests for support across SMUD were successfully filled	All employees referred to the program were placed, but 20 requests for support were unfilled as no additional employees were available
b)	Employee Resource Groups	Contribute to an inclusive work culture by creating a sense of community and promoting education and awareness in alignment with SMUD's mission and values and our Inclusion Policy	168 ERG events supported business initiatives  705 total ERG members	143% increase in the number of ERG activities & events from 2019  Parents ERG was created in 2020
c)	Corporate Learning & Development Curriculum	Develop skills and leadership competencies that will support SMUD's current and future business strategy	2,446 active employees averaged 38 hours of training	Average training hours remain consistent  2021 increase expected with virtual learning platform LinkedIn Learning
	Internal & External Leadership Programs	Provide experiential learning opportunities to develop leadership, and support collaboration and philanthropy in the community	18 employees participated in local and regional leadership development programs	21 employees were selected for 2020, however, three employees were pushed to the 2021 cycle due to COVID-19 impacts on two community organization sponsors

			Nine director level coaches were added to the Building Leadership Talent (BLT) to enhance the overall coaching experience for BLT participants.	Dramatically increased multi-level leader involvement in the process, this in turn increased leader exposure to program opportunities and ownership of program outcomes.
c)	Education Assistance	Support employee continued education to attract & retain a highly qualified workforce	135 employees utilized the program; 56 employees completed one or more classes with University of Arizona Global Campus; 10 graduates	10% decrease in participation from 2019 Ashford University became University of Arizona Global Campus
d)	Engagement Index Pulse Survey	Understand the employee level of engagement and support leaders in sustaining high levels of engagement while identifying continuous improvement opportunities	Commitment to culture demonstrated via enterprise goal of having 60% of all managers & supervisors complete Speed of Trust Key Concepts learning  While Engagement Survey was not conducted amid COVID disruption, Remote Worker surveys helped leaders gauge wellness and engagement levels	Exceeded Speed of Trust learning goal by 7%  Focus is on increasing trust as a foundation for improving collaboration and communication
e)	Workforce Outreach & Partnerships	Promote job opportunities, grow diversity of talent pipeline and talent pool, raise awareness of SMUD's employer brand	Participated in female (4), LGBTQ (1), culture & ethnic focused (81), low income (9), and veteran (3) employment-related events	Increased outreach to underutilized areas by 87.5%
	Internships	Strengthen talent pipeline by immersing students of varied backgrounds in SMUD's culture and careers	1,106 college intern applicants, 47 college interns hired; 10 summer high school interns; 4 high school students during the school year	Internship program was scaled in response to COVID-19 and SMUD's hiring freeze

				Understandably, applicant numbers decreased as well
	Powering Futures Scholarships	Support diverse talent pipeline in community and STEM disciplines	21 scholarships awarded	The scholarships ranged from \$1,750 (for Community College students) to \$4,000 for 4-year University students)
e)	CSUS Powering Hornets and UCD Powering Aggies Scholarships	Support talent pipeline and STEM disciplines in community	1 scholarship awarded to each university	These contributions are in the form of endowments managed by each university
	Hornet Leadership Program - SMUD cohort	Support talent pipeline and STEM disciplines in community	Funded 10 students from diverse backgrounds majoring in critical IT majors	SMUD donated to this program at the \$25,000 sponsorship level, used to fund scholarships and assist with program administration
f)	Code of Business Ethics and Employee Conduct	Provide an easy-to-read explanation of SMUD's values and expectations for employee behavior	100% compliance	Code supplements SMUD's state law-mandated Conflict of Interest Code
g)	Workforce Demographics Reporting	Provide informational update on workforce demographics	Identify and report on trends and ongoing efforts for a high quality, diverse and inclusive workforce	See SD-8 appendix for detailed reporting

### 3. Additional Supporting Information

Please see attached Appendix for additional information related to the SD-8 metrics.

### 4. Challenges

In 2020, we saw the COVID-19 pandemic change the way SMUD employees work, learn, and collaborate, essentially overnight. Warranted concerns for the safety of our employees and the Sacramento community severely impacted our ability to conduct outreach while the world and country learned more about varying degrees of risk and exposure to the virus. However, programs and organizations have since quickly adapted to virtual platforms and hybrid events, providing new and different ways to learn and share more about SMUD careers in the community.



## **5. Recommendations**

As reflected in this report, SMUD has achieved the goals set forth in SD-8 for ensuring SMUD develops and maintains a high quality, inclusive workplace that engages and inspires employees to commit to SMUD's purpose, vision, and values. We began complementing engagement work with deep work on a culture of trust in 2019-2020 and are focused on building higher levels of trust, diversity, and inclusiveness as a foundation for realizing our desired culture.

In conjunction with increased visibility into Workforce Demographic data, Talent Management has begun and will continue to reframe and validate their advertisement and outreach activities to ensure a more direct correlation in our efforts to reach underrepresented populations.

*It is recommended the Board accept the monitoring report for Strategic Direction 8.*

## **Appendix**

### **a) SMUD shall attract and retain a highly qualified workforce.**

#### **Attracting and Retaining our Workforce**

While SMUD only hired for essential positions after instituting a hiring freeze in 2020, we oversaw a variety of changes to address the potential for inequity within the talent acquisition process, including continued unconscious bias training for interview panels, guidelines for hiring managers to improve the diversity of interview panels, and pay equity analysis for all new hires. Talent Management continues to partner with stakeholders - both internally at SMUD, as well as externally in the community - to drive interest and develop pipelines of qualified applicants.

#### **Career Ambassadors – Talent Pipeline**

SMUD Career Ambassadors shifted their approach from representing SMUD at in-person events such as career fairs, career exploration, and mock interviews, to attending and hosting virtual career events. Career Ambassadors attended 21 in-person events before COVID-19 restrictions took effect. Out of an abundance of caution, 51 of the community events Career Ambassadors were scheduled to attend were canceled. In total, Career Ambassadors invested 188 hours and still reached more than 13,000 members of the community.

Among their 2020 achievements, ambassadors successfully launched SMUD's inaugural Career Exploration Month in October 2020. Community members were able to register for free virtual workshops and panel discussions to learn about careers at SMUD. Workshops included resume writing, interviewing skills, how to apply for a job at SMUD, and a review of SMUD's entry level jobs. Panel discussion topics included women in STEM at SMUD, veterans at SMUD, and skilled trade careers at SMUD. Career Ambassadors hosted 14 career exploration workshops/panel discussions with 750 community members registering to attend the events.

#### **Wellness**

For 2020, SMUD's Health Assessment Program (HAP) participation increased by 21% from 576 to 695. As a result of COVID-19, Wellness activities pivoted from in-person to virtual, and we believe this contributed to an increase in participation. We offered greater flexibility to participants to achieve their Wellness/HAP goals by collaborating with our Wellness partners (SMUD ERGs, Kaiser, Sutter Health, United HealthCare, SAFE Credit Union, Wells Fargo Bank, Fidelity Investments, and OptumHealth). We also offered weekly virtual yoga classes and stretch breaks to our employees. On March 21, 2021, we launched a reimagined Wellness/HAP program focused on the 4 pillars of Wellness: Social, Mental, Physical, and Financial. A much broader range of activities will be provided virtually in support of this holistic approach. Emphasis was placed on mental wellness including family wellness during the pandemic and work/life balance as employees found themselves navigating the confines of the pandemic.

## **Benefits**

Open enrollment in 2020 consisted of 10 meetings for employees and retirees. We launched a Virtual Benefit Fair platform to provide our employees and retirees with an easy to use and fun web portal, accessible from any device (i.e. mobile phone, desktop/laptop and ipad). This platform provided for all their benefit needs including benefit guidebooks, plan summary documents, and the ability to send questions to our benefit providers.

## **Retention**

SMUD's turnover decreased in 2020, from 8.5% in 2019 to 6.2%. This decrease can be attributed to unprecedented impacts to the business environment during the COVID-19 pandemic, which resulted in dramatically reduced retirements. Retirements decreased to 66 in 2020, from 105 retirements in 2019. SMUD's turnover continues to rank below the industry benchmark of 13.1%. In addition to SMUD's Baby Boomer workforce entering retirement eligibility, this data also aligns with the cyclical pattern we've seen in retirements over time. Historically, we see these numbers rise in small waves that crest every three to four years.

### **b) SMUD shall promote inclusion and diversity and engage its workforce in activities that demonstrate and support inclusion and diversity across the organization.**

## **Employee Resource Groups**

Employee Resource Groups (ERGs) made significant contributions to SMUD culture by extending support and creating space for meaningful conversations throughout the year. ERGs focused their attention to key areas such as racial/social justices, mental wellness and overall care for employees. These groups helped foster inclusion among our hybrid workforce by hosting several virtual interactions and programs to keep employees connected during the pandemic, including but not limited to the following:

- LUNA hosted a virtual workshop with a marriage and family therapist to address stigmas in mental health, generational trauma facing the LatinX community, and tips for using the Employee Assistance Program, and finding a therapist.
- The GRAIN ERG also championed mental health by way of its support for a documentary about anxiety titled "Angst" and a live panel discussion featuring one SMUD employee's personal journey of anxiety and depression after the unexpected death of a child.
- Our Military and PRIDE ERGs collaborated to co-host a presentation from the National Alliance on Mental Illness (NAMI), during which several veterans shared their personal stories to raise awareness, provide advocacy, and discuss support programs that benefit people living with mental illness.
- BERG created a platform and safe space to openly discuss ways we can combat systemic racism in America, and continually extended support and education for employees braving the tragic events of the year.

The 8 ERGs at SMUD include:

- Black Employee Resource Group (BERG)
- Asian Pacific Islander (GRAIN ERG)
- Latinos Unity Network for Action (LUNA)
- Military Employee Resource Group (MERG)
- People Reaffirming Inclusion Diversity and Equality (PRIDE)
- Women's Employee Resource Group (WERG)
- Young Professionals Employee Resource Group (YP)
- Parents ERG

New in 2020 was the addition of the Parents ERG, which aims to support an environment where SMUD parents and prospective parents are more productive, focused, and present because they feel confident, happy, and balanced in their home life. Some contributions from this group over the last year include helping to address childcare during the pandemic; collaborating with our caregiver's support group; and continually providing resources to help alleviate stress for families.

All ERGs play an important role in mentoring, professional development, diverse workforce recruiting and volunteerism at SMUD and in the community. In 2020, they provided valuable resources and insight for diverse workforce recruiting, wellness and dependent care, SMUD's Sustainable Communities Initiative, and internships. We continue to explore ways to embed and amplify their valuable experiences and perspectives in our business practices.

### **Pay equality at SMUD**

SMUD's been working to make sure we're a workplace where diversity, equity, and inclusion are part of who we are and how we do things. Supporting efforts that promote pay equality is part of that. In 2020, the Women's ERG started working to address barriers for women in three key areas: advocacy, culture, and personal and professional development. Thanks to a partnership between Human Resources, Diversity, & Inclusion and WERG, SMUD signed the California Commission on the Status of Women and Girls Equal Pay Pledge in late 2020, committing to:

- Conduct an annual gender pay analysis
- Review hiring and promotion procedures
- Support best practices to close the pay gap

This pledge was a natural extension of pay equality efforts HRD&I has been making since 2017 to take a close look at job classes and issues tied to gender in order to ensure equity in SMUD pay for PAS/management jobs. (Union jobs are addressed by their respective Memorandums of Understanding.)

**c) SMUD shall engage its workforce in personal and professional development.**

Learning and development teams across SMUD design and deliver training courses and programs that support employees' on-the-job and professional development needs. Learning goals are connected to SMUD's Strategic Directions, and course offerings are reviewed at least quarterly to ensure alignment to business strategy and include a mix of classroom, online, and self-directed learning.

The move to remote work en masse in March 2020 constituted a real-time, successful experiment in trust as over 1,300 employees proved they could be productive from home. We helped employees adapt to a remote environment by providing a virtual meeting tool kit and curating an e-learning curriculum on *Mastering Remote Work*. We helped leaders adapt by developing a best practices resource guide, facilitating peer-to-peer learning via live webinars, and curating an e-learning curriculum on *Leading Change*.

With the additional availability of training courses via the LinkedIn Learning platform, we anticipated an increase in the average hours of training per employee in 2020. However, in response to the pandemic, in-person classes were cancelled and redesigned for a virtual environment, significantly reducing overall offerings and consequently resulting in a lower overall number of training hours than anticipated. In example, some corporate learning and development sessions were reduced in length to account for learners sitting in front of screens all day. With the employees' health and safety top of mind, some original two-day, in-person courses were modified to one-day, four-hour virtual experiences. Additionally, varied and demanding priorities at home and work likely contributed to less dedicated time to training in general.

There were 2,446 employees who received classroom and computer-based training in 2020, with an average of 38 training hours per individual. Mandatory training ranged from 4.25 to 29 hours depending on the employee's position and included enterprise-wide, cross-functional, and department-specific requirements. We saw 246 employees leverage the LinkedIn Learning platform and complete courses totaling more than 700 hours. Content included subjects such as project management, leadership development, Microsoft products, managing virtually, communication, and customer service skills.

**Leadership Development**

SMUD's leadership development efforts reflected the shifting landscape in 2020 as everyone learned to navigate the impacts of the pandemic and social justice issues facing the country and world. In recognition of how much there is to be learned from lived experiences, our executives met with each of SMUD's eight ERGs to listen and learn how they can best support these groups and implement systemic change to positively impact workforce outcomes.

SMUD also partnered with the American Leadership Forum to provide senior leaders learning and dialogue on implicit bias, equity, and their role in creating a culture of inclusion. As part of that series, senior leaders watched the documentary *Race: The*

*Power of an Illusion*, which explores how race has been constructed in America over time through public policies that exclude people of color. That documentary provided context to the importance of equity, and it became pre-work for a September 2020 Leadership Summit of all SMUD leaders (supervisors and above). At the Summit, executive leaders described SMUD's commitment to diversity and inclusion, introduced the concept of equity, and provided leaders with a diversity, equity, and inclusion resource guide. We also provided all employees with a curated e-learning *Creating Inclusion* curriculum highlighted at a Lunch & Learn co-sponsored by SMUD's ERGs.

To complement the ongoing internal development opportunities afforded SMUD leaders, an external leadership development selection process is conducted annually to match applicants with a program that effectively meets their development needs and SMUD's business objectives. We sent 20 employees to several local and regional leadership development programs including Nehemiah Emerging Leaders, WEI Business Acumen for Emerging Leaders, Asian Pacific Chamber Catalyst program, Leadership Rancho Cordova program, Leadership Elk Grove, Leadership Sacramento, Leaders United, Sacramento Entrepreneurship Academy, and SMUD's (internal) Building Leadership Talent program.

We proudly added a 10th leadership program to SMUD's community portfolio in 2020 named Nueva Epoca. This new program focuses on increasing leadership opportunities and awareness of LatinX community needs in the Greater Sacramento area.

### **Education Assistance**

The education assistance benefit supports employees who are pursuing college degrees and developing their SMUD careers by completing certificates or taking individual classes that support our business. We offer up to \$5,000 per calendar year for qualified, regular full-time employees to partake in eligible programs, and up to \$2,500 for part-time employees. Many employees use the program to pursue an Associate's, Bachelor's or Master's degree in areas as wide-ranging as accounting, law, finance, human resource management, information technology, project management and energy efficiency.

### **d) SMUD's percentage of engaged employees as measured through the Engagement Index shall exceed 80%.**

### **Building a Culture of High Trust**

While an Employee Engagement Survey was not conducted amid COVID disruption in 2020, leaders continued to deliver on their commitments to developing a culture of high trust. In February, SMUD hosted a Leadership Summit for 270+ supervisors, managers and senior leaders to roll out the updated 5-year strategic plan and learn more about the language and behaviors that build trust in an organization. Members from the Executive Team shared the business case for trust and gave real-life examples of how practicing behaviors of trust have led to improvements at work and at home.



When COVID-19 caused us to cancel in-person learning, we reimagined our Speed of Trust classroom training and created a virtual e-learning / live discussion course to ensure supervisors and managers could learn key concepts. We held approximately 20 sessions of this learning, and reached 181 supervisors and managers, 67% of 270 leaders total. We also converted a hard copy “huddle guide” into a virtual slide deck to help leaders incorporate trust discussions into meetings.

SMUD leaders made concentrated efforts to improve the flow of information throughout the organization. Each Executive and many directors held regular virtual “all hands” meetings to share the latest on how SMUD was managing through the pandemic.

**e) SMUD shall use a broad mix of communication and outreach channels to ensure its recruitment activities reflect the diversity of the communities it serves.**

### **Employment Outreach and Partnerships**

Our expanded outreach in 2020 included partnerships with a wide variety of organizations to build greater awareness of SMUD as a top employer and to help build a diverse talent pipeline. These organizations included the Greater Sacramento Urban League, Innovative Pathways to Public Service, Sacramento Trainings and Employment Agency, She Shares, California Department of Veterans Affairs, American Society of Engineering Education: Minorities Engineering Division, Tech Latino, Women Who Code, Goodwill Industries, The Rainbow Chamber, Association of Women in Water, Energy & Environment, Improve Your Tomorrow, and California Indian Manpower Consortium, Inc. We continue to conduct employment outreach with educational institutions and consistently partner and collaborate with SMUD’s Sustainable Communities and Community Engagement.

### **Internships**

With consideration given to the community impact and talent pipeline, SMUD proceeded with offering its internship programs in a limited capacity in 2020 by inviting students to join its remote workforce. A SMUD Internship SharePoint site was created after recognizing the increased need for a central resource location for managers, mentors, interns, and employees with student-aged relatives. Whereas we’ve traditionally hosted in-person showcases for employees and community partners to learn about intern work, we successfully transitioned to illustrating accomplishments and projects on the SharePoint site in 2020.

While surveying former interns, we learned of their desire for more cross-departmental collaboration. In this spirit, we launched two projects in 2020 that created collaborative opportunities for all interns: a collage showcasing SMUD’s D&I commitment; and a campaign to support and market Clean Air Day pledges from SMUD employees.

Interns tackled a variety of important initiatives for the organization, including but not limited to:

- Assisted project to transform distribution substations from wired to wireless communication

- Oversaw design plans for future substations or expanding substations
- Collaborated with analysts to create a predictive model supporting SMUD's customer billing unit
- Assisted in managing the High School Internship Program by developing content for the interns to help them grow in their personal and professional development
- Wrote a conservation easement to protect in perpetuity threatened and endangered species habitat for the California Tiger Salamander as part of the mitigation measures for the expansion of the photovoltaic solar bank at Rancho Seco
- Redesigned SMUD's Career page and drafted updates, reviewed updates and published updates on SMUD's website
- Obtained business partners feedback and themed 180+ data points
- Analyzed approximately 25,000 PV systems to determine the rate at which energy production decreases
- Developed Artificial Intelligence Innovation Pilot to identify internal talent for SMUD priority initiatives

Impressive efforts like those outlined above have resulted in SMUD's internship program being recognized by the Interns 2 Pros organization as the Internship Program of the Year for the Sacramento Region two years in a row (2019 and 2020).

### **Powering Futures scholarships**

Twenty-one recipients were awarded up to \$4,000 each and included local students registered in a degree program. Those with a demonstrated financial need pursuing majors related to careers in SMUD received preference. Along with the scholarships, students were also presented with an opportunity to receive a paid internship.

### **Powering Aggies and Powering Hornets Scholarship Programs**

The Powering Aggies and Powering Hornets Scholarship programs were set up in 2018 to provide a scholarship for 1 student each from UC Davis and Sac State. Eligible students who majored in a SMUD-related career field (UC Davis) or Electrical Engineering (Sac State) were selected by their respective universities. In 2020, SMUD fully funded these scholarships to create endowments that will provide a more sustainable source of funding with the goal being to provide up to \$2,500 for each student each year in the future. With the increase in the endowment, SMUD awarded the Powering Aggies winner \$1,430 and the Powering Hornets winner \$900.

### **Hornet Leadership Program (HLP)**

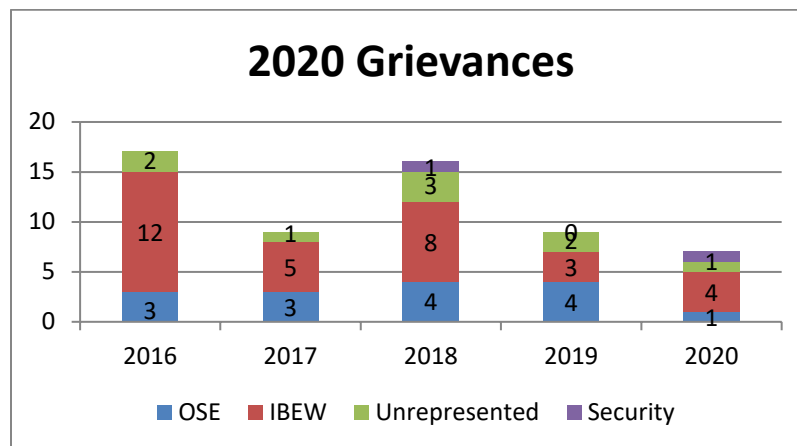
This two-year, extra-curricular program, launched in Fall 2018, introduces students to an array of vital training. Students completing the program will have demonstrated leadership skills commensurate with industry requirements. Of the 35 student scholars participating in the entire HLP program during the year, SMUD sponsored 10 IT students from diverse backgrounds. The seminars hosted by the HLP program are also open to all Computer Science career planning students which makes up a total of 160+ students.



**f) SMUD shall maintain and communicate written policies that define procedures and expectations for staff and provide for effective handling of grievances.**

In addition to SMUD's Code of Business Ethics and Employee Conduct, its Employee and Labor Relations teams provided daily advice, guidance and counsel to employees on employee relations issues. Staff worked to ensure all employees (represented and unrepresented) understand SMUD policies and procedures, and that employees know and understand what their responsibilities are with respect to the Code of Ethics.

A total of 7 grievances were filed and closed in 2020, down from 9 grievances in 2019.



**g) Annually, and consistent with State and Federal law, the Board shall receive a report detailing the demographics of the SMUD workforce, the available workforce, and the Sacramento region. The report shall also provide information on veterans as a part of SMUD's workforce.**

The chart below provides the demographic information about SMUD's workforce (excluding "casual" positions and members of the Board of Directors), compared to two external benchmarks: the U.S. Labor Force and select county census data in California.

**Workforce Demographics**

Calendar Year	Male	Female	Caucasian	African American	Hispanic	Asian	Native American	2 or more Races
2020	66%	34%	58%	7%	15%	15%	1%	4%
2019	66%	34%	59%	8%	14%	15%	0%	4%
2018*	66%	34%	60%	8%	14%	15%	0%	4%
2017*	67%	33%	61%	7%	13%	14%	1%	3%
2016	67%	33%	62%	7%	13%	14%	1%	3%
2015	67%	33%	63%	8%	12%	13%	1%	3%
2014	68%	32%	65%	8%	11%	13%	1%	2%

EEO Tabulation 2006-2010 (5-year American Community Survey data)*								
Sacramento, El Dorado & Placer Co.**	52%	48%	60%	7%	17%	13%	1%	3%
U.S.***	53%	47%	67%	11%	15%	5%	1%	1%

\* Percentages may not add up to 100% due to rounding.

\*\* The tri-county demographics are based on a civilian labor force and represent residents aged 16 and older. These numbers exclude houseworkers, unpaid volunteers, institutionalized individuals, and U.S. Armed Forces active duty.

\*\*\* The 2020 U.S. Census data is not available. While high-level summaries may become available in Summer of 2021, the detail census information at the county & municipality level may not be available until later in 2021.

In 2020, SMUD's workforce continued to change with Caucasian employees representing 58% of the workforce, down from 59% in 2019. This shift occurred as the representation of Hispanic employees increased by 0.4%, and Asian employees increased by 0.4% in 2020. (Note: the total percentages may not add up to 100% due to rounding.) The primary drivers behind this shift are employee turnover rates, which create opportunities to hire, and the demographic makeup of qualified applicants. SMUD continues to extend its outreach to build greater awareness of its career opportunities and develop its talent pipeline while building a workforce that reflects the diversity of the communities we serve.

### Military Veterans in SMUD's Workforce

Veterans are a small but important part of SMUD's workforce. According to our records, Veterans comprised 4.8% of SMUD's workforce in 2020, up from 3.4% in 2019 and 3.7% in 2018. This increase is the result of our enhanced focus on Veteran self-reporting and partnership with the Military Employee Resource Group.

### Veteran Demographics

	Male	Female	Caucasian	African American	Hispanic	Asian	Native American	2 or more Races
SMUD Veterans 2020	91%	9%	58%	7%	14%	13%	0%	8%
SMUD Veterans 2019	92%	8%	55%	8%	16%	14%	0%	7%
SMUD Veterans 2018*	92%	8%	56%	8%	15%	14%	0%	6%
SMUD Veterans 2017*	91%	9%	59%	8%	14%	14%	0%	6%
SMUD Veterans 2016	92%	8%	60%	9%	11%	13%	0%	6%
CA Veterans	91%	9%	61%	9%	18%	7%	1%	4%

\*Percentages may not add up to 100% due to rounding

Source: [va.gov/vetdata](https://va.gov/vetdata)(09/30/18)

**DRAFT**

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-8, Employee Relations**, substantially in the form set forth in **Attachment \_\_\_\_** hereto and made a part hereof.



SSS No.
TR21-002

# BOARD AGENDA ITEM

## STAFFING SUMMARY SHEET

Committee Meeting & Date ERCS – 05/19/21
Board Meeting Date May 20, 2021

TO				TO					
1.	Jon Olson			6.	Stephen Clemons				
2.	Scott Martin			7.					
3.	Jennifer Davidson			8.					
4.	Frankie McDermott			9.	Legal				
5.	Tracy Carlson			10.	CEO & General Manager				
Consent Calendar	X	Yes	No	If no, schedule a dry run presentation.	Budgeted		Yes	X	No (If no, explain in Cost/Budgeted section.)
FROM (IPR) Russell Mills				DEPARTMENT Treasury			MAIL STOP B355	EXT. 6509	DATE SENT 4/26/21

### NARRATIVE:

**Requested Action:** Approve the sale of 2023 local Resource Adequacy (RA), on behalf of Valley Clean Energy (VCE), to the newly designated Central Procurement Entity (CPE), Pacific Gas & Electric (PG&E).

**Summary:** In its June 11, 2020 decision (D.20-06-002), the CPUC established Central Procurement Entities that would assume the default role in undertaking collective RA procurement in lieu of Load Serving Entities' (LSE) individual procurement obligations. PG&E is now responsible for procuring the Local RA obligations on behalf of all LSEs' in its footprint for 2023 onward, including VCE, a community choice aggregator (CCA). VCE has already procured a large portion of its 2023 Local RA requirements prior to the formation of the CPE and the Local RA is no longer required by VCE for 2023 onwards.

For VCE to recover the value of the 2023 Local RA, it will need to be sold to CPE/PG&E, as other LSEs, including CCAs, no longer have an obligation to buy Local RA for 2023 onwards. If VCE cannot sell the 2023 Local RA to PG&E, it will become System RA, which has a much lower value. Because there is a potential significant financial impact if VCE is unable to monetize the Local RA and PG&E is the only buyer of the Local RA, VCE has agreed to assume any PG&E credit or performance risk for selling the Local RA to PG&E and there is an executed letter agreement documenting this between SMUD and VCE.

As VCE's credit services provider SMUD will enter into the Local RA sale transaction with PG&E on VCE's behalf. SMUD's Energy Risk Management and Energy Trading Standards, as approved by the Board, prohibit energy transactions with any counterparty whose bond rating is below investment grade, unless the counterparty posts sufficient collateral to cover the transaction risk. While PG&E has emerged from Bankruptcy it is below investment grade and the Local RA sale to PG&E requires Board approval.

Recommendation to approve the requested action is based on the following:

- SMUD is not taking any performance or payment risk as a result of this transaction; the risk remains with VCE.
- Inability by SMUD to sell VCE's Local RA to PG&E could result in significant financial impact to VCE as it would be unable to monetize \$1.5-\$5 million of Local RA and recover the costs it has already incurred under the original regulatory construct for RA.

**Board Policy:** Strategic Direction SD-3, Access to Credit Markets; Strategic Direction SD-11, Public Power Business Model; Strategic Direction SD-17, Energy Risk Management; Strategic Direction SD-19, Diversified Business

**Benefits:** Allows VCE to monetize its Local RA for 2023 and improve its financial position as a result.

**Cost/Budgeted:** Not Applicable

**Alternatives:** If no action is taken, SMUD would be unable to sell VCE's Local RA in order to recover the costs it has already incurred under the original regulatory construct for RA.

**Affected Parties:** Energy Trading & Contracts, Treasury, Settlements

**Coordination:** Community Energy Services, Energy Trading & Contracts, Treasury, Legal

**Presenter:** Russell Mills, Director of Risk Management & Treasurer

**Additional Links:**

SUBJECT

**Approval for Valley Clean Energy (VCE) Trading Transaction**

ITEM NO. (FOR LEGAL USE ONLY)

**9**

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

**RESOLUTION NO. \_\_\_\_\_**

**WHEREAS**, in its June 11, 2020, decision (D.20-06-002), the **California Public Utilities Commission (CPUC)** established **Central Procurement Entities (CPE)** that would assume the default role in undertaking collective **Resource Adequacy (RA)** procurement in lieu of **Load Serving Entities' (LSE's)** individual procurement obligations; and

**WHEREAS**, as a result of this decision, **Pacific Gas & Electric (PG&E)** was designated the **CPE** and is now responsible for procuring the **Local RA** obligations on behalf of all **LSEs** in its footprint, including **Valley Clean Energy (VCE)**, a community choice aggregator (CCA), for 2023 onward; and

**WHEREAS**, **VCE** has procured a large portion of its 2023 **Local RA** requirements, prior to formation of the **CPE**, which is no longer required by **VCE** for 2023 onward; and

**WHEREAS**, **VCE** will need to sell the **Local RA** to the **CPE** to recover the value of the 2023 **Local RA** since other **LSEs**, including CCAs, no longer have an obligation to buy **Local RA** for 2023 onward; and

**WHEREAS**, if **VCE** is unable to sell the 2023 **Local RA** to the **CPE**, it will become **System RA**, which is a much lower value and could result in significant financial impact to **VCE**; and

**WHEREAS**, **VCE** executed a letter agreement with SMUD to assume any **PG&E** credit or performance risk for selling the **Local RA** to the **CPE/PG&E**; and

**WHEREAS**, SMUD, as **VCE's** credit services provider, will enter into the **Local RA** sale transaction with the **CPE/PG&E** on **VCE's** behalf; and

**WHEREAS, SMUD's Energy Risk Management and Energy Trading Standards** prohibit energy transactions with any counterparty whose bond rating is below investment grade unless the counterparty posts sufficient collateral to cover the transaction risk; and

**WHEREAS,** although **PG&E** has emerged from bankruptcy proceedings, its credit rating is below investment grade thus necessitating Board approval for the sale of **Local RA** to the **CPE/PG&E**; and

**WHEREAS,** staff recommends approval of the sale due to the absence of performance or payment risk for SMUD associated with this transaction and failure to sell could result in significant financial impact to **VCE**; **NOW, THEREFORE,**

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

**Section 1.** This Board approves SMUD's sale of 2023 **Local Resource Adequacy (RA)**, on behalf of **Valley Clean Energy (VCE)**, to the newly designated **Central Procurement Entity (CPE)**, **Pacific Gas & Electric (PG&E)**.





SSS No.

EM 21-005

# BOARD AGENDA ITEM

## STAFFING SUMMARY SHEET

Committee Meeting &amp; Date

ERCS – 05/19/21

Board Meeting Date

May 20, 2021

TO					TO								
1.	Emily Bacchini				6.	Stephen Clemons							
2.	Patrick Durham				7.								
3.	Gary King				8.								
4.	Frankie McDermott				9.	Legal							
5.	Tracy Carlson				10.	CEO & General Manager							
Consent Calendar			Yes	X	No <i>If no, schedule a dry run presentation.</i>		Budgeted	X	Yes		No <i>(If no, explain in Cost/Budgeted section.)</i>		
FROM (IPR) Kim Crawford					DEPARTMENT Environmental Services					MAIL STOP B209		EXT. 5063	DATE SENT 4/26/2021

**NARRATIVE:**

**Requested Action:** Adopt the California Environmental Quality Act (CEQA) Initial Study and Mitigated Negative Declaration (IS/MND) for the North City Landfill Closure Project; adopt the Mitigation Monitoring and Reporting Program; and approve the Project.

**Summary:** The North City Landfill Closure Project (Project) consists of remediating, including installation of a soil cover and drainage improvements, of the approximately 12-acre North City Landfill disposal site (NCLF, Site) owned by SMUD and the approximately 1.5-acre City of Sacramento (City) Lot 31 disposal site (Lot 31), which are located near Sutter's Landing Regional Park. SMUD purchased the Site from the City in 1950; previous to SMUD purchasing the Site, it was used as a landfill, where burning of municipal waste occurred, by the City. NCLF has approximately 20 feet of burned or partially burned municipal waste overlaid by approximately 11 feet of inert construction and demolition debris, some of the latter of which was placed by SMUD. Lot 31, previously owned by Blue Diamond Growers, reportedly may contain small amounts of fill with construction and demolition debris.

The Project will consist of six main components: clearing and grubbing, concrete demolition, rough site grading, soil cover placement, drainage improvements and post-remediation monitoring and maintenance. Upon completion, a 2-foot-thick minimum soil cover with a minimum slope of 2 percent will cover both the Site and Lot 31 to isolate the waste and provide rainfall drainage off the Site. The Project would be performed in compliance with the requirements established by the California Department of Resources Recycling and Recovery (CalRecycle) and California Code of Regulations Title 27 solid waste regulations, and regulated by Sacramento County Environmental Management Department (EMD) as the Local Enforcement Agency in Sacramento County.

An Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to evaluate the Project and concluded that the Project would not have a significant effect on the environment after the incorporation of mitigation measures for the following: Biological Resources, Cultural Resources, Hazards and Hazardous Materials, and Tribal Cultural Resources. An environmental justice evaluation was included in the IS/MND in excess of the CEQA requirements to help inform decision makers to determine whether the Project supports SMUD's goal of helping to advance environmental justice and economic vitality to all communities in SMUD's service area with special attention to historically underserved neighborhoods. The evaluation concluded no existing environmental justice conditions would be worsened as a result of the Project. The draft IS/MND was released for a 30-day agency and public comment period that began on January 21, 2021, and ended on February 22, 2021. Copies of the draft SIS/MND were distributed to the State Clearinghouse of the Governor's Office of Planning and Research; SMUD's Headquarters and East Campus-Operations Center; and relevant resource agencies (distributed via State Clearinghouse). The draft IS/MND was also posted on smud.org/ceqa. A public notice was published in the *Sacramento Bee* and sent to landowners and occupants within 1,000 feet from the Site and 200 feet from the haul route. A virtual CEQA public meeting was held on February 4, 2021; one member of the public attended.

During the public comment period, SMUD received four comment letters from the Sacramento County EMD, Central Valley Regional Water Quality Control Board (CVRWQCB), Save the American River Association (SARA), and a local resident. The comments did not raise environmental issues or concerns regarding the adequacy or completeness of the environmental document. The letter from the Sacramento County Environmental Management Department summarized their role, the Project, the regulatory requirements and provided clarification of the role of the CVRWQCB in the event of encountering hazardous contamination. These edits, as well as other edits to provide additional clarity, have been incorporated into the revised Hazards and Hazardous Materials mitigation measure in the Final IS/MND. This revision did not change the draft IS/MND's conclusion that the Project, as mitigated, will not cause a significant impact. The letter from the CVRWQCB summarized their regulatory responsibility of protecting the quality of surface water and groundwaters of the state. The letter from SARA focused on impacts to wildlife, contouring of the Site, and requested removal of contaminated soil. The letter from the local resident (Corey Brown) focused on transferring the Site to the City, impacts to wildlife, and project design including contouring of the Site. Responses to all comments received are included in the Final IS/MND.

In 2020, SMUD and the City entered into an agreement allowing SMUD to use Lot 31 for construction of drainage improvements. As part of this agreement, SMUD will construct a 2-foot-thick soil cover over portions of Lot 31 where Construction & Demolition debris has been reportedly placed. Also, as part of this agreement, SMUD will deed the Site to the City once the State minimum standards are met for the landfill soil cover, and the City will assume all post-remediation monitoring and maintenance at the City's sole cost. Future use of the Site under City ownership may potentially include open space habitat and public recreation. SMUD's CEQA document did not analyze the property transfer or the City's future land uses; prior to being undertaken, those land uses would be analyzed as a separate project under CEQA by the City or other appropriate lead agency.

**Board Policy:** The Project supports Board adopted policy SD-7 (Environmental Leadership) by reducing adverse  
(Number & Title) environmental impacts, reducing pollution and proactively engaging customers and other stakeholders.

**Benefits:** The Project involves the improvement and long-term closure of a former landfill site. Objectives of the Project include remediating the NCLF and Lot 31 to be in compliance with current requirements and regulations, which are designed to ensure that construction-related and post-closure activities associated with the Project site would not pose a threat to human health and the environment, to minimize potential impacts to sensitive receptors, public health and the environment by reducing infiltration and improving water quality of storm water runoff from the Site and reducing the chance for direct contact with solid waste and waste constituents to meet regulatory standards. The Project will reduce potential impacts on the community by minimizing the potential for release of hazardous materials into the environment and providing a benefit to public health.

**Cost/Budgeted:** Approved multi-year project 2016-2023 for \$7,470,098

**Alternatives:** Adopt the Initial Study and Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program and approve the Project; return to staff for further study; or reject the Initial Study and Mitigated Negative Declaration.

**Affected Parties:** City of Sacramento, Sacramento County Environmental Management Department, and the general public.

**Coordination:** Environmental Services, Legal, Grid Assets, Community Engagement, Sustainable Communities, City of Sacramento, Sacramento County Environmental Management Department, United Auburn Indian Community of the Auburn Rancheria, Shingle Springs Rancheria and the general public.

**Presenter:** Kim Crawford, Environmental Specialist

**Additional Links:** Draft and Final North City Landfill Closure IS/MND – [www.smud.org/ceqa](http://www.smud.org/ceqa)

SUBJECT

**North City Landfill Closure Project**

ITEM NO. (FOR LEGAL USE ONLY)

**10**

ITEMS SUBMITTED AFTER DEADLINE WILL BE POSTPONED UNTIL NEXT MEETING.

# Sacramento Municipal Utility District

## North City Landfill Closure Project

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Final Initial Study and Proposed Mitigated Negative Declaration •  
State Clearinghouse Number 2021010226 •  
April 16, 2021

Powering forward. Together.



# Sacramento Municipal Utility District

## North City Landfill Closure Project

Final Initial Study and Proposed Mitigated Negative Declaration •  
State Clearinghouse Number 2021010226 •  
April 16, 2021

### Lead Agency:

Sacramento Municipal Utility District  
6201 S Street, MS H201  
Sacramento, CA 95817-1899

or

P.O. Box 15830 MS H201  
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**ACRONYMS AND OTHER ABBREVIATIONS**

CalRecycle	California Department of Resources Recycling and Recovery
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
DTSC	California Department of Toxic Substances Control
EMD	Sacramento County environmental management Department
IS	Initial Study
LEA	Local Enforcement Agency
MMRP	mitigation monitoring and reporting program
MND	Mitigated Negative Declaration
NAHC	California Native American Heritage Commission
NCLF	North City Landfill
NPDES	National Pollutant Discharge Elimination System
RWQCB	Regional Water Quality Control Board
SMUD	Sacramento Municipal Utility District
TCR	Tribal cultural resource

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## EXECUTIVE SUMMARY

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### Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to evaluate the potential physical environmental impacts associated with Sacramento Municipal Utility District's (SMUD) North City Landfill Closure Project (project) in compliance with the California Environmental Quality Act (CEQA). SMUD is the lead agency responsible for complying with the provisions of CEQA.

### Project Description

SMUD is proposing a landfill closure project of two properties with historical landfill activities, in compliance with California Department of Resources Recycling and Recovery (CalRecycle) requirements and the California Code of Regulations (CCR) Title 27 solid waste regulations, as regulated by Sacramento County Environmental Management Department (EMD). Sacramento County EMD is the Local Enforcement Agency (LEA) in Sacramento County. The project would include demolition of concrete slab and piers, grading the site for proper drainage, importing soil for the soil cover, constructing a gravel maintenance road, transmission tower maintenance pads and the final soil cover, and developing site drainage improvements and erosion control. Upon completion of landfill closure activities, a post-remediation site monitoring and maintenance plan would be implemented as part of the project to address issues such as site inspections, environmental monitoring, cover maintenance, utility construction, and maintenance of existing and future utilities.

### Findings

As lead agency for compliance with CEQA requirements, SMUD finds that the project would be implemented without causing a significant adverse impact on the environment. Mitigation measures for potential impacts associated with Biological Resources, Cultural Resources, Hazards and Hazardous Materials, and Tribal Cultural Resources would be implemented as part of SMUD's project through adoption of a mitigation monitoring and reporting program (MMRP).

### Cumulative Impacts

CEQA requires lead agencies to assess whether a project's incremental effects are significant when viewed in connection with the effects of other past, present, and foreseeable future projects. Based on the analysis presented in the Draft IS/MND, the project would not contribute incrementally to considerable environmental changes when considered in combination with other projects in the area. Therefore, the potential cumulative environmental effects of the project were determined to be less than cumulatively considerable. All identified potentially significant impacts would be mitigated to less than significant.




## Growth-Inducing Impacts

SMUD exists as a public agency to supply electrical energy to customers in the Sacramento area. It has an obligation to serve all new development approved by the local agencies and Sacramento County. SMUD does not designate where and what new development may occur.

## Determination

On the basis of this evaluation, SMUD concludes:

- The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered species, or eliminate important examples of the major periods of California history or prehistory.
- The project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The project would not have impacts that are individually limited, but cumulatively considerable.
- The project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.
- No substantial evidence exists to demonstrate that the project would have a substantive negative effect on the environment.

  
\_\_\_\_\_  
Kim Crawford  
Environmental Management Specialist

\_\_\_\_\_  
4/16/21  
Date

# 1 INTRODUCTION

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## 1.1 Project Overview

The Sacramento Municipal Utility District (SMUD) is proposing a landfill closure project of two properties with historical landfill activities, in compliance with California Department of Resources Recycling and Recovery (CalRecycle) requirements and the California Code of Regulations (CCR) Title 27 solid waste regulations, as regulated by Sacramento County environmental management Department (EMD). Sacramento County EMD is the Local Enforcement Agency (LEA) in Sacramento County. The project would include demolition of concrete slab and piers, grading the site for proper drainage, importing soil for the soil cover, constructing a gravel maintenance road, transmission tower maintenance pads and the final soil cover, and developing site drainage improvements and erosion control. Upon completion of landfill closure activities, a post-remediation site monitoring and maintenance plan would be implemented as part of the project to address issues such as site inspections, environmental monitoring, cover maintenance, utility construction, and maintenance of existing and future utilities.

## 1.2 Environmental Process Summary

### 1.2.1 *Review of the Draft IS/MND*

Copies of the Draft IS/MND were made available in hard copy form for public review at SMUD offices (Customer Service Center and East Campus Operations Center), posted on SMUD's public website, and distributed to the State Clearinghouse via the Governor's Office of Planning and Research. A notice of intent was distributed to property owners and occupants of record within 1,000 feet of the project site and 200 feet from the haul route. The 30-day public review period began on January 21, 2021 and ended on February 22, 2021. SMUD held an online public meeting on February 4, 2021. Four comment letters were received during the comment period. These comment letters and SMUD's written responses to each comment received are presented in Section 2.0 of this document. As noted in Section 2.0, the conclusions presented in the Draft IS/MND were not altered in response to comments received.

### 1.2.2 *Preparation of the Final IS/MND*

The comment letters were reviewed, and responses were prepared (see Section 2.0). Based on the comments received, there were no new environmental effects identified. The Final IS/MND does not incorporate any changes to the project description or to the Initial Study checklist responses in the Draft IS/MND (provided as Appendix A of this Final IS/MND).

**CEQA Guidelines**

CEQA Guidelines Section 15073.5 provides the conditions for determining if recirculation of a negative declaration is required before adoption. Section 15073.5(a) states:

*A lead agency is required to recirculate a negative declaration when the document must be substantially revised after public notice of its availability has previously been given pursuant to Section 15072, but prior to adoption.*

According to Section 15073.5(b), a substantial revision is defined as:

- (1) A new, avoidable significant effect is identified, and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or*
- (2) The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required.*

SMUD has determined that none of the aforementioned conditions were satisfied following public notice; therefore, recirculation of the Draft IS/MND is not required. SMUD, as the lead agency, may proceed to present the Final IS/MND to the SMUD Board for action.

Circumstances under which recirculation is not required include:

- (1) Mitigation measures are replaced with equal or more effective measures pursuant to Section 15074.1.
- (2) New project revisions are added in response to written or verbal comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects.
- (3) Measures or conditions of project approval are added after circulation of the negative declaration which are not required by CEQA, which do not create new significant environmental effects and are not necessary to mitigate an avoidable significant effect.
- (4) New information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration. (Section 15073.5[c])

No changes to the checklist in the Draft IS/MND is required; therefore, recirculation of the Draft IS/MND is not required.

### 1.3 Mitigation Measures

This section presents the mitigation measures SMUD would implement to address potential impacts on Biological Resources (as addressed in 3.4 of the Draft IS/MND), Cultural Resources (as addressed in 3.5 of the Draft IS/MND), Hazards and Hazardous Materials (as addressed in 3.9 of the Draft IS/MND), and Tribal Cultural Resources (as addressed in 3.18 of the Draft IS/MND). These measures reflect text revisions as documented in the Final IS/MND.

#### 1.3.1 *Biological Resources*

As discussed in Section 3.4, “Biological Resources” of the Draft IS/MND, elderberry shrubs are located within 20 feet of the project footprint and the closest soil disturbance to the shrubs is approximately 50 feet. Although removal of elderberry shrubs would not occur, there is potential for direct and indirect impacts on elderberry shrubs, such as excessive dust created by construction activities depositing on elderberry shrub leaves and grading in proximity to the shrubs causing damage to the roots. These activities could adversely affect the health and vigor of the shrubs, ultimately resulting in their death and the loss of valley elderberry longhorn beetles that inhabit the shrubs. Direct or indirect incidental take of habitat for a federally listed species is considered a potentially significant impact.

Implementation of Mitigation Measure 3.4-1 would minimize impacts on valley elderberry longhorn beetle by avoiding the elderberry shrubs, documenting the location of the shrubs on work orders, implementing worker environmental awareness training, fencing or flagging an avoidance area at least 20 feet from the dripline of the elderberry shrubs, watering of the site would reduce dust that could affect the health and vigor of the shrubs, and conducting biological monitoring during rough grading activities of the infiltration pond. With implementation of Mitigation Measure 3.4-1, the potential impact on valley elderberry longhorn beetle would be reduced to a ***less-than-significant*** level.

#### **Mitigation Measure 3.4-1: Avoid Elderberry Shrubs**

*To maintain the health and vigor of elderberry shrubs, SMUD shall avoid the elderberry shrubs and implement the following incidental take avoidance measure:*

- 1. No grading would occur within 20 feet of the dripline of the elderberry shrubs.*

*SMUD shall implement the following impact avoidance measures for activities conducted between 20 and 100 feet of elderberry shrubs to avoid incidental take during construction:*

- 1. The presence of elderberry shrubs in the construction area and vicinity will be documented on work orders, and the SMUD project manager will be informed.*

2. *A qualified biologist shall provide training for all contractors, work crews, and any on-site personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.*
3. *A 20-foot exclusion boundary around elderberry shrubs will be clearly flagged or fenced in the field and marked on construction plans, and signs will be posted with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable and must be maintained for the duration of construction.*
4. *The excluded zone will be designated an Environmentally Sensitive Area and a biological monitor will be required to supervise rough grading of the infiltration pond. The monitor will have the authority to stop work if personnel are out of compliance with the valley elderberry longhorn beetle avoidance measures or if there is a risk that incidental take may occur.*
5. *Watering of the site for dust suppression will help reduce the amount of dust that could affect the health and vigor of the elderberry shrubs.*

There are no known occurrences of either Swainson's Hawk or white-tailed kite in the immediate vicinity of the project site. However, because several mature trees are present in the surrounding area and because occurrences of these two species nesting within urban areas have been documented, there is a potential that either species could nest near or adjacent to the project site. If so, there is a potential that construction activities at the project site could disturb active nests, resulting in nest abandonment, which would be considered a significant impact.

In addition to providing potential nesting sites for Swainson's hawk and white-tailed kite, mature trees in the general project area could support nests of common raptors, including Cooper's hawk, red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and great horned owl (*Bubo virginianus*). In addition to common raptors, trees adjacent to the project site may also support other common nesting birds. The nests of common raptors and other common birds are protected under Sections 3503 and 3503.5 of California Fish and Game Code.

Implementation of Mitigation Measure 3.4-2 would ensure that the project would not result in disturbance to or loss of nesting birds by either undertaking activities outside of nesting bird season or implementing buffers around active nests during the nesting bird season. Therefore, the impact to nesting Swainson's hawk, white-tailed kite, and other nesting birds would be reduced to a **less-than-significant** level.

**Mitigation Measure 3.4-2: Avoid or Minimize Effects on Nesting Swainson's Hawk, White-Tailed Kite, and Other Nesting Birds**

*The following measures shall be implemented to avoid or minimize loss of active Swainson's hawk, white-tailed kite, and other raptor nests:*

- If construction (including vegetation removal) would occur during the nesting season (between February 1 and August 31), a SMUD project biologist/biological monitor shall conduct pre-construction nesting bird surveys to determine whether birds are nesting in the work area or within 0.25 mile for Swainson's hawk and 500 feet for all other nesting birds of the project site.*
- The pre-construction nesting bird surveys will identify on-site bird species and any nest-building behavior. If no nesting Swainson's hawks are found on or within 0.25 mile of the project site or if no nesting birds are found on or within 500 feet of the project site during the pre-construction clearance surveys, construction activities may proceed as scheduled.*
- If pre-nesting behavior is observed but an active nest of common nesting bird has not yet been established (e.g., courtship displays but no eggs in a constructed nest), a nesting bird deterrence and removal program will be implemented. Such deterrence methods include removal of the previous year's nesting materials and removal of partially completed nests in progress. After a nest is situated and identified with eggs or young, it is considered to be "active," and the nest cannot be removed until the young have fledged.*
- If active Swainson's hawk nests are found within the nest survey area, the construction contractor shall avoid impacts on such nests by establishing a no-disturbance buffer around the nest. Monitoring of the nest by a qualified biologist during construction activities shall be required if the activity has the potential to adversely affect the nest. Based on guidance for determining a project's potential for affecting Swainson's hawks (Swainson's Hawk Technical Advisory Committee 2000), projects in urban areas have a low risk of adversely affecting nests greater than 600 feet from project activities. Therefore, 600 feet is anticipated to be the adequate buffer size for protecting nesting Swainson's hawks from disturbances associated with the project. However, the qualified biologist shall consult with CDFW to confirm the adequacy of the no-disturbance buffer and/or whether the buffer may be reduced based on the biologist's professional judgment.*
- If an active white-tailed kite nest or nest of a common bird species is found on or within 500 feet of the project site during construction, a "no-construction" buffer zone will be established around the active nest (usually a minimum radius of 50 feet for passerine birds and 500 feet for raptors) to*



*minimize the potential for disturbance of the nesting activity. The project biologist/biological monitor will determine and flag the appropriate buffer size required, based on the species, specific activities being conducted, tolerances of the species, and the nest location. Project activities will resume in the buffer area when the project biologist/biological monitor has determined that the nest(s) is (are) no longer active or the biologist/biological monitor has determined that with implementation of an appropriate buffer, work activities would not disturb the bird's nesting behavior.*

- *If special-status bird species are found nesting on or within 500 feet of the project site, the project biologist/biological monitor shall notify SMUD's project manager to notify CDFW or USFWS, as appropriate, within 24 hours of the first nesting observation.*

### 1.3.2 Cultural Resources

The City of Sacramento's Lot 31 contains some construction and demolition debris beneath the surface from historical landfill operation. In addition, areas within Lot 31 have further been substantially altered through the installation of a large stormwater retention basin at the eastern extent of the project site. Given these factors, the project site has low sensitivity for buried prehistoric archaeological resources within SMUD's North City Landfill (NCLF) property and low-to-moderate sensitivity for buried prehistoric archaeological resources within the City's Lot 31. While Lot 31 was on the northern edge of historical disposal activities and was altered by installation of a stormwater retention basin, there is a low-to-moderate potential for pockets of buried historic archaeological resources elsewhere within Lot 31.

Implementation of Mitigation Measure 3.5-1 would reduce potential impacts to archaeological resources discovered during project construction activities to a ***less-than-significant*** level by requiring preservation options and proper curation if significant artifacts are recovered.

#### **Mitigation Measure 3.5-1: Worker awareness and response for discovery of previously unknown cultural resources**

*In the event that a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or 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. If the find is a prehistoric archeological site, the appropriate Native American group shall be notified. 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 an 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 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.*

*Historic-period pieces (e.g., bottles, bricks, etc.), if encountered, are only considered potentially significant and requiring evaluation pursuant to this measure within the Lot 31 portion of the project site.*

There are no known past cemeteries or burials on the project site or immediate area. However, because earthmoving activities associated with project construction would occur, there is potential to encounter buried human remains or unknown cemeteries in areas with little or no previous disturbance.

Implementation of Mitigation Measure 3.5-2 would reduce potential impacts related to human remains to a ***less-than-significant*** level by requiring work to stop if suspected human remains are found, communication with the county coroner, and the proper identification and treatment of the remains consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act.

**Mitigation Measure 3.5-2: Halt ground disturbance upon discovery of human remains**

*Consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act, if suspected human remains are found during construction, all work shall be halted in the immediate area and place an exclusion zone (lath and flagging) around the burial. The Principal Investigator will notify the City of Sacramento Police Department, who will in turn notify the county coroner to determine the nature of the remains. The coroner shall examine all discoveries of suspected human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she shall contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC shall then assign a most likely descendant to serve as the main point of Native American contact and consultation. Following the coroner's findings, the MLD, in consultation with the City, shall determine the ultimate treatment and disposition of the remains.*



### 1.3.3 Hazards and Hazardous Materials

Excavated materials are generally not expected to be hauled off site and would be buried within the landfill and place under the proposed cover. However, while the construction and demolition debris layer of the landfill is known to be approximately 3 to 18 feet thick, the thickness throughout the site is not well known. Thus, the municipal layer, beneath the construction and demolition debris layer, could be encountered, particularly where excavation would be deeper along the drainage bench on the eastern slope of the NCLF property. Municipal waste may contain household hazardous products, such as bleach, cleansers, asbestos, and other waste from domestic disposal that could be released into the environment.

Implementation of Mitigation Measure 3.9-1 would minimize impacts on accidental release into the environment because if a potentially hazardous material is encountered, it would be evaluated for reburial at the site or removal. This would ensure that any discovered hazardous materials would not be released into the environment or cause a substantial hazard to this public. Thus, this impact would be a reduced a **less-than-significant** level.

#### **Mitigation Measure 3.9-1: Manage accidental discovery of hazardous materials**

*In the event that unknown potentially hazards items, which were not identified in previous site investigations, are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. SMUD will also consult with other regulatory agencies such as the DTSC or RWQCB, as necessary, to determine the appropriate disposal method and location. If it is determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.*

### 1.3.4 Tribal Cultural Resources

Consultation with United Auburn Indian Community and Shingle Springs revealed that the project site is considered culturally sensitive. Although the California Native American Heritage Commission (NAHC) Sacred Lands File was positive, neither Tribe identified a Tribal cultural resource (TCR). Therefore, it is possible that yet-undiscovered TCRs could be encountered or damaged during ground-disturbing construction activities. Implementation of Mitigation Measures 3.18-1 and 3.18-2 would reduce impacts to TCRs to a **less-than-significant** level by requiring notification of tribal representatives prior to earth-disturbing activities and, in the case of a discovery, appropriate treatment and proper care of significant TCRs.

**Mitigation Measure 3.18-1: Avoid Tribal Cultural Resource; Post Ground Disturbance**

*A minimum of seven days prior to beginning earthwork, clearing and grubbing, or other soil disturbing activities, SMUD shall contact the Tribes with the proposed earthwork start-date and a Tribal Representative or Tribal Monitor shall be invited to inspect the project site, including any soil piles, trenches, or other disturbed areas, within the first five days of groundbreaking activity, or as appropriate for the type and size of project. During this inspection, a Tribal Representative or Tribal Monitor may provide an on-site meeting for construction personnel information on TCRs and workers awareness brochure.*

*If any TCRs are encountered during this initial inspection, or during any subsequent construction activities, Mitigation Measure 3.18-2 shall be implemented.*

**Mitigation Measure 3.18-2: Unanticipated Discoveries of Potential TCRs**

*If any suspected TCRs are discovered during ground disturbing construction activities, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Appropriate Tribal Representative(s) shall be immediately notified and shall determine if the find is a TCR (pursuant to PRC section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary.*

*Preservation in place is the preferred alternative under CEQA and the Tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project area where they will not be subject to future impacts. The Tribe does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a Tribal Cultural Resource may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.*

## **1.4 CEQA Determination**

SMUD has determined that although the project could have a significant effect on the environment, a significant effect would not occur with implementation of the aforementioned mitigation measures because the proposed mitigation measures would reduce the effects of any impacts to below the established thresholds of significance. Therefore, SMUD published the proposed MND and supporting IS on January 21, 2021, and SMUD's Board of Directors will consider adoption of the MND at a Board meeting on May 20, 2021.

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## 2 COMMENTS AND RESPONSES

### 2.1 Introduction

The Draft IS/MND for the project was circulated for a 30-day public review period (January 21, 2021 to February 22, 2021). During the public comment period, SMUD received four comment letters, including two comment letters from agencies and two from interested members of the public (see Table 2-1)

**Table 2-1. List of Commenters**

Letter Number	Name
1	Will Scheffler, REHS Sacramento County February 10, 2021
2	Angela Nguyen-Tan, Environmental Scientist Central Valley Regional Water Quality Control Board February 19, 2021
3	Corey Brown, Attorney at Law February 19, 2021
4	Stephen Green, President Save the American River Association February 21, 2021

### 2.2 Responses to Comments

The comment letters identified above and SMUD's responses to comments are provided on the following pages.

Environmental Management  
Department

Marie Woodin, Director



Letter  
1

February 10, 2021

Kim Crawford  
SMUD  
6201 S Street  
Sacramento, CA 95817

Dear Ms. Crawford:

**SUBJECT: LEA COMMENTS ON INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR NORTH CITY LANDFILL CLOSURE PROJECT – APN: 001-0160-034-0000, 001-0160-018-0000, AND 003-0032-031-0000**

**Authority and Background**

The Sacramento County Environmental Management Department (EMD) is certified by the California Department of Resources, Recycling, and Recovery (CalRecycle) to act as the Local Enforcement Agency (LEA) within the cities and County of Sacramento. EMD is authorized by Division 30 of the Public Resources Code (PRC), section 43209, and Title 14 of the California Code of Regulations (14 CCR), sections 18051 and 18084, to enforce solid waste laws and regulations.

On January 25, 2021, EMD received notification of SMUD's Notice of Availability/Intent to Adopt the Mitigated Negative Declaration (MND) for the Initial Study (IS) for the North City Landfill Closure Project, located at SMUD's North City Substation at North B Street, in Sacramento. Via email correspondence with SMUD on January 4, 2021, EMD provided comments on a previous draft of the IS/MND. In consultation with CalRecycle staff, EMD provides the following additional comments.

1-1

**LEA Comments**

- 1) Based upon the information provided, the project work would be conducted on three parcels; APN 001-0160-034-0000, 001-0160-018-0000, and 003-0032-031-0000. The first two of these parcels form SMUD's North City Substation property while the third, Parcel 031, is owned by the City of Sacramento. Both properties are currently regulated by EMD as closed landfills that predate current California solid waste regulations. The SMUD North City Substation landfill is identified in CalRecycle's Solid Waste Information System (SWIS) website as 34-CR-0005 and Sacramento's Parcel 031 is identified as 34-CR-0009.
- 2) The IS/MND describes SMUD's plan to dismantle the current on-site electrical substation and install a soil cover across SMUD's 12 acre North City Substation landfill property and across 1.5 acres of Sacramento's Parcel 031 property in order to bring both landfill properties into compliance with

1-2

1-3

SMUD North City Landfill Closure Project  
February 10, 2021  
Page 2

- current applicable State Minimum Standards (SMS). A 2-foot thick soil cover is proposed over waste which would be compacted over rough grades. This 2-foot thick cover should suffice to bring the two landfill properties into compliance with SMS for final cover (27CCR 21140) based on the current site conditions. Please note that additional requirements may be issued by EMD in the future if the site conditions significantly change or in the event of future post-closure land-use changes and/or development pursuant to 27CCR 21190. EMD will continue to inspect both the North City Substation and Parcel 031 sites on a quarterly basis after the sites have been graded and capped. Any issues noted during inspections related to the maintenance and repair of the cover, drainage, and erosion controls will be noted on the inspection reports and issued to the property owner/s.
- 3) Section 2.3.3 "Project Schedule on Page 18 indicates that the projected is anticipated to begin during the second quarter of 2022 and would be completed by late 2022 and involve construction over a period of 6-9 months. The proposed schedule and completion timeframe is acceptable to EMD.
- 4) Mitigation Measure 3.9-1 on Page 69 of the IS/MND indicates that in the event that contaminated soils or potentially hazardous items are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. The mitigation measure also indicates that SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. If it determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified contractor to an appropriate, permitted waste disposal facility. Please note that EMD, as the LEA, only ensures compliance with SMS as they apply to solid waste. Any hazardous contamination at the site should be reviewed and addressed in consultation with the Department of Toxic Substance or the Central Valley Regional Water Quality Control Board.
- 5) The IS/MND also indicates on Page 69 that while landfill gas generation and migration potential is very low, it is possible that landfill gas migration may shift based on the placement of the soil cover and cap. SMUD has committed to continue monitoring landfill gas migration using the existing landfill gas perimeter and in-waste monitoring system to help ensure methane levels at the property boundary are in compliance with state requirements for subsurface combustible gas migration control. Please note that there is currently no landfill gas extraction/control system on either SMUD's North City Substation property or Sacramento's Parcel 031. If methane concentrations exceed 5% by volume in air at any perimeter monitoring wells, installation of a landfill gas extraction/control system will be required pursuant to 27CCR 20921 - 20939.
- 1-3  
cont.
- 1-4
- 1-5
- 1-6

**Contact**

If you have any questions regarding this letter, please contact me at (916) 591-6995.

SMUD North City Landfill Closure Project  
February 10, 2021  
Page 3

Sincerely,



Will Scheffler, REHS  
Environmental Specialist III  
Solid Waste Program

JL:WS:la

c: Dawn Liang, CalRecycle (via LEA Portal)  
Todd Del Frate, CVRWQCB  
Gregory Ruiz, DTSC

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LETTER\_021021.DOCX



<b>Letter 1</b>	<b>Sacramento County</b> Will Scheffler, REHS February 10, 2021
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- 1-1 The comment provides an overview of the Sacramento County Environmental Management Department's (EMD's) role as the Local Enforcement Agency (LEA) within the cities and County of Sacramento, and other introductory remarks. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 1-2 The comment includes details related to the ownership of the project site, noting that it is listed on CalRecycle's Solid Waste Information System website. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 1-3 The comment describes the project proposed in the IS/MND and notes that additional requirements may be issued for the site by EMD if the site conditions substantially change or in the event that future post-closure land use changes and/or development occur on the site. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 1-4 The comment expresses approval of the project schedule. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 1-5 The comment addresses Mitigation Measure 3.9-1, noting that any hazardous contamination at the project site should be reviewed and addressed in consultation with the California Department of Toxic Substances Control (DTSC) or the Central Valley Regional Water Quality Control Board (RWQCB). The comment accurately notes the appropriate review process and agencies in the event of encountering hazardous contamination, and these edits have been incorporated into the Final IS/MND. Note that other edits have been made to this mitigation measure to provide additional clarity. These changes are presented in Chapter 3, "Changes to the Draft IS/MND Text."



Mitigation Measure 3.9-1 of the Draft IS/MND has been revised to read as follows:

**Mitigation Measure 3.9-1: Manage accidental discovery of hazardous materials**

- *In the event that ~~contaminated soils or unknown~~ potentially hazardous items, which were not identified in previous site investigations, are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. SMUD will also consult with other regulatory agencies such as the DTSC or RWQCB, as necessary, to determine the appropriate disposal method and location. If it is determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.*

The correction does not alter the conclusions with respect to the significance of any environmental impact.

- 1-6 The comment states that, although landfill gas generation and migration potential is very low, it is possible that landfill gas migration may shift based on the placement of the soil cover. As noted by the comment, landfill gas monitoring would continue as part of the post-remediation monitoring and maintenance plan, as described in Draft IS/MND Section 2.3.4.4, Post-Remediation Monitoring and Maintenance Plan. The comment also notes that if methane concentrations exceed 5 percent by volume in air at any perimeter monitoring wells, installation of a landfill gas extraction/control system will be required. The comment notes the applicable exceedance threshold, and these edits have been incorporated into the Final IS/MND. These changes are presented in Chapter 3, "Changes to the Draft IS/MND Text."

The text in the first paragraph on page 23 of the Draft IS/MND has been revised to read as follows:

A landfill gas collection and control system, including a flare, would not be required because only low levels of methane have been detected at the project site. Landfill gas would be monitored post-remediation, via landfill gas monitoring probes located along the perimeter of the property, to ensure landfill gas is not migrating offsite. If methane concentrations exceed 5 percent by volume in air at any perimeter monitoring wells, installation of a landfill gas extraction/control system will be required (26 CCR 20921-20939). Future use of the site may potentially include recreation, pending deeding of the land to the City, and other utility improvements. Details and funding related to these actions are unknown at this time, cannot be known at the time of release of this document, and when they are undertaken would constitute separate efforts from the project (i.e., would be analyzed as separate project under CEQA).

Thus, because a meaningful evaluation of these speculative activities is not possible, they are not discussed further in this IS/MND.

The correction does not alter the conclusions with respect to the significance of any environmental impact.



Letter  
2

## Central Valley Regional Water Quality Control Board

19 February 2021

Kim Crawford  
Sacramento Municipal Utility District  
6201 S Street, Mail Stop H201  
Sacramento, CA 95817

### COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, NORTH CITY LANDFILL CLOSURE PROJECT, SCH#2021010226, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 21 January 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the North City Landfill Closure Project, located in Sacramento County.

2-1

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

#### I. Regulatory Setting

##### Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

2-2

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental

KARL E. LONGLEY ScD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | [www.waterboards.ca.gov/centralvalley](http://www.waterboards.ca.gov/centralvalley)

Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/)

#### **Antidegradation Considerations**

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

[https://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr\\_2018\\_05.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_2018_05.pdf)

2-2  
cont.

In part it states:

*Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*

*This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

## **II. Permitting Requirements**

### **Construction Storm Water General Permit**

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml)

2-3

**Phase I and II Municipal Separate Storm Sewer System (MS4) Permits<sup>1</sup>**

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/municipal\\_permits/](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/)

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/phase\\_ii\\_municipal.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml)

**Industrial Storm Water General Permit**

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/industrial\\_general\\_permits/index.shtml](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml)

**Clean Water Act Section 404 Permit**

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

**Clean Water Act Section 401 Permit – Water Quality Certification**

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic

<sup>1</sup> Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.



North City Landfill Closure Project  
Sacramento County

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19 February 2021

General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/water\\_quality/certification/](https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality/certification/)

**Waste Discharge Requirements – Discharges to Waters of the State**

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at: [https://www.waterboards.ca.gov/centralvalley/water\\_issues/waste\\_to\\_surface\\_water/](https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/)

2-4  
cont.

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

[https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2004/wqo/wqo2004-0004.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf)

**Dewatering Permit**

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:  
[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf)

North City Landfill Closure Project  
Sacramento County

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19 February 2021

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/waivers/r5-2018-0085.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf)

**Limited Threat General NPDES Permit**

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2016-0076-01.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf)

**NPDES Permit**

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: <https://www.waterboards.ca.gov/centralvalley/help/permit/>

2-4  
cont.

If you have questions regarding these comments, please contact me at (916) 464-0335 or Angela.Nguyen-Tan@waterboards.ca.gov.



Angela Nguyen-Tan  
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research,  
Sacramento

<b>Letter 2</b>	<b>Central Valley Regional Water Quality Control Board</b> Angela Nguyen-Tan, Environmental Scientist February 19, 2021
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- 2-1 The comment provides introductory remarks to the comment letter. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 2-2 The comment provides information related to the Basin Plan and Antidegradation Policy. The Basin Plan and Antidegradation Policy are not applicable to the project because no water would be discharged to waters of the state or United States (see Draft IS/MND Section 2.3.4.1, Water Pollution Control Plan). No further response is necessary.
- 2-3 The comment identifies general permitting requirements, related to the State Water Resources Control Board's Construction General Plan Order No. 2009-0009-DWQ. As discussed in the first paragraph under Draft IS/MND Section 2.3.4.1, Water Pollution Control Plan, "on-site drainage would be redirected toward the proposed drainage ditch and infiltration pond. Runoff from the project would not come into contact with any waters of the state or United States. Thus, there would be no construction general permit required from the State Water Resources Control Board." As further discussed, SMUD would also implement a water pollution control plan that, "would identify best management practices that address excavation areas, stockpile areas, street entrances and exits, construction vehicle maintenance areas, water tanks, dust suppression activities, and postconstruction site stabilization." No changes to the document are required in response to this comment.
- 2-4 The comment lists regulatory requirements for the Phase I and II Municipal Separate Storm Sewer System, the Industrial Storm Water General Permit Order No. 2014-0057-DWQ, Clean Water Act Permits, Waste Discharge requirements, Dewatering Permits, Limited Threat General National Pollutant Discharge Elimination System (NPDES) permit, and NPDES permits. As noted above under response to comment 2-2 and 2-3, on-site drainage would be redirected toward the proposed drainage ditch and infiltration pond. These regulatory requirements would not apply to the project. No changes to the document are required.



**Corey Brown**  
*Attorney at Law*  
510 21<sup>st</sup> Street  
Sacramento, CA 95811  
[cibrown@icloud.com](mailto:cibrown@icloud.com) – (916) 947-7109

February 19, 2021

RE: North City Landfill Closure Project Draft Initial Study  
And Mitigated Negative Declaration – Comments  
(Delivered Via Email to: [Kim.Crawford@SMUD.org](mailto:Kim.Crawford@SMUD.org))

Ms. Kim Crawford  
Sacramento Municipal Utilities District  
6201 S Street  
Sacramento, CA 95811

Dear Ms. Crawford:

Thank you for this opportunity to comment on the Sacramento Municipal Utilities District's *North City Landfill Closure Project Draft Initial Study and Mitigated Negative Declaration*.

The purpose of this letter is to urge SMUD to incorporate a more natural contour to the final project design that better reflects the subject property's riverside location and future use as part of a riverside park.

First, I would like to commend SMUD for proposing the remediation of this site and the eventual transfer of the property to the City of Sacramento as an addition to Sutter's Landing Park. SMUD's efforts are a continuation of your commendable commitment to protecting the environment while meeting the energy needs of your ratepayers. Like many others in our community, I am proud to be a long-term SMUD customer and greatly appreciate and support SMUD's leadership on energy conservation, advancement of renewable energy, reduction of greenhouse gases, and many other activities. I would also like to commend SMUD for choosing to use native grasses in this project rather than exotic or ornamental species.

Second, I would like to underscore the importance of the subject property to the environment and to your ratepayers. The property that SMUD has agreed to convey to the City of Sacramento sits adjacent to and extends into the American River Parkway and the Lower American River. The Lower American River is designated under both the California and the United States Wild and Scenic Rivers Acts because of its extraordinary natural resources and recreational values. The American River Parkway receives about 8 million visitor days per year.

The American River Parkway Plan's policies for the applicable Woodlake Area include:

"Protect, enhance, and expand native habitats that benefit fish and wildlife species including creation of seasonable wetlands habitat, grassland restoration for raptor foraging habitat, and restoration of riparian and woodland habitat." (Section 10.16)

Raptor foraging habitat is very relevant to this project.

3-1

3-2

The Parkway Plan includes specific provisions that apply to adjacent lands including the subject property:

“Development immediately adjacent to the Parkway shall respect the intent of the Parkway goals by reducing visual impacts through context sensitive site planning and building design.” (Section 7.25, American River Parkway Plan).

Furthermore, the Urban American River Parkway Preservation Act provides, in part, that:

“(A)ctions of state and local agencies with regard to land use decisions shall be consistent with the American River Parkway Plan...” (California Public Resources Code, beginning with Section 5840).

3-3

The environmental assessment recognizes that:

“...three species likely to occur in or immediately adjacent to the project site (include): valley elderberry longhorn beetle, Swainson’s hawk (*Buteo Swainsoni*), and white-tailed kite” and that the “project has the potential to adversely affect” these protected species.

White-tailed kites are a listed “fully protected” species, Swanson’s hawks are a listed threatened species, and the Valley elderberry long-horn beetles are a listed threatened species.

In addition, the City of Sacramento plans to construct the Two Rivers Trail across the northern portion of the subject property and has an agreement with Blue Diamond to purchase the adjacent property as an addition to Sutter’s Landing Park. The work that SMUD does on the subject property will be highly visible from these locations that will become public sites within a very reasonable period of time.

3-4

These factors together justify SMUD’s decision to incorporate native grasses into the project as proposed. These factors also provide significant reasons why SMUD should design the project to mimic more natural contours that are appropriate for this riverside parcel. With careful design, this can be done consistent with the remediation requirements. SMUD should also explore the feasibility of planting wildlife friendly bushes and other plants where consistent with the remediation requirements and not interfering with the overhead transmission lines. The net result of taking these additional mitigation actions will be a safely remediated property that will be better enjoyed by SMUD customers for many generations to come, as well as a healthier Lower American River environment.

3-5

I offer the following comments on some specific environmental assessment provisions:

- The project design includes establishing a trench along the eastern portion of the subject property and across the northern portion of the City’s Lot 31 to transport water to the infiltration basin. SMUD should evaluate whether the trench would inhibit wildlife passage and, if so, incorporate design features that would facilitate wildlife moving across the trench. This could include incorporating a cover across portions of the trench or other design features. This area provides habitat for coyotes and other wildlife.
- Design the trench and infiltration basin to benefit wildlife to the extent consistent with remediation requirements.

3-6

- Minimize the size of the pads that will be constructed around the electrical transmission lines and the gravel roads that will provide maintenance access to those sites. Design the roads in a wildlife-friendly manner, to the extent feasible. 3-7
  - Page 23, line #5: Insert “and wildlife habitat” after “recreation” as a continuing use of the property. 3-8
  - Page 26, Section 3.1.1 (Environmental Setting): Revise to recognize that the environmental setting includes the Wild and Scenic Lower American River, American River Parkway, and habitat for a wide variety of wildlife including sensitive species. This section should also recognize the project site is an adjacent property to the American River Parkway and that provisions of the American River Parkway Plan and the Urban American River Parkway Preservation Act are applicable. 3-9
  - Page 27: Revise to indicate the property will be highly visible as an addition to Sutter’s Landing Park, from the adjacent Blue Diamond property that will be added to the Park, and from the City’s Two Rivers Trail that will be constructed within the foreseeable future. The discussion of visual impacts should be further revised to indicate the project will incorporate a contour that mimics a more natural riverside setting. This could serve as mitigation to visual impacts. 3-10
  - Page 28: This discussion indicates “the area would appear as relatively smooth soil graded to allow water to flow to the west.” This should be revised to read: “this area will incorporate contours that mimic a natural riverside setting while facilitating the flow of water to the west.” 3-11
  - Page 39: See discussion above regarding the trenches. 3-12
  - Pages 43-46: As discussed above, the environmental assessment recognizes the project will impact sensitive species. Incorporating a more natural contour for the property and native plants, along with the expanded habitat footprint, can compensate for these impacts. 3-13
  - Page 66: SMUD should continue to coordinate with officials at Courtyard School to ensure the project includes sufficient safeguards to protect school children and employees. 3-14
  - Pages 75-76: As discussed above, this section should be re-written to incorporate a natural contour that is more appropriate given its location next to the American River/American River Parkway and its intended use as an addition to Sutter’s Landing Park. 3-15
- For these reasons, I fully encourage SMUD to incorporate a contour of the property that more closely mimics a natural riverside setting and other wildlife-friendly features, consistent with meeting the various remediation requirements. 3-16

Thank you in advance for considering these comments.

Sincerely,

Corey Brown

cc. Mr. Rob. Kerth, SMUD Board of Directors, Ward 5

**Letter 3**Corey Brown, Attorney at Law  
February 19, 2021

- 3-1 The comment expresses appreciation for the project and notes that SMUD plans to deed to project site to the City of Sacramento. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 3-2 The comment provides text from an American River Parkway Plan policy applicable to the Woodlake Area and notes that raptor foraging habitat is relevant to the project. Use of the project site as foraging habitat by Swainson's hawk and other raptors is described in the Draft IS/MND on pages 45-46. As discussed in the last paragraph on page 45 of the Draft IS/MND, "Although the temporary disturbance to foraging habitat would occur, there is adjacent foraging habitat in parcels next to the site and along the north shore of the American River; thus, no mitigation for the temporary disturbance to foraging habitat is required." No changes to the document are necessary.
- 3-3 The comment lists specific provisions of the Parkway Plan and the Urban American River Parkway Preservation Act. The comment also correctly describes that white-tailed kites, Swainson's hawks, and valley elderberry longhorn beetle are special-status species. Special-status species are discussed in Draft IS/MND Section 3.4, Biological Resources. This comment does not raise environmental issues or concerns regarding the adequacy, accuracy, or completeness of the environmental document. The comment is noted and will be provided to the SMUD Board for review during project consideration of the project for approval. No further response is necessary.
- 3-4 The comment states that the project site would be highly visible from the adjacent Blue Diamond site and future sections of the City's Two Rivers Trail. This comment is noted. Section 3.1, "Aesthetics," addresses the potential impacts on the visual character or quality of public view of the project site. No specific comments related to the analysis were provided; thus no further response is necessary.
- 3-5 The comment recommends that SMUD incorporate additional mitigation measures of natural contours into the project site and plantings of wildlife friendly bushes and other vegetation. CEQA Guidelines Section 15126.4(3) states that mitigation measures are not needed for effects that are not found to be significant. Because the Draft IS/MND identifies mitigation measures that, if adopted, will reduce all significant impacts related to aesthetics and biological resources to a less-than-significant level, the suggested measure are not considered necessary to be incorporated into the project. In addition, given that SMUD is granting the property to the City of Sacramento, the City would have discretion on what types of plantings

it chooses to install on the property and how best to contour the landscape to enhance its plans for the property following completion of the project. No changes to the document are required.

Please see response to comment 3-11 for a discussion related to the feasibility of incorporating contours into the project site.

- 3-6 The comment states that the project design includes establishing a trench along the eastern portion of the subject property and across the northern portion of the City's Lot 31 to transport water to the infiltration basin. The comment states that SMUD should evaluate whether the trench would inhibit wildlife passage and, if so, incorporate design features that would facilitate wildlife moving across the trench. This could include incorporating a cover across portions of the trench or other design features. This area provides habitat for coyotes and other wildlife.

The comment further states the trench and infiltration basin be designed to benefit wildlife to the extent consistent with remediation requirements. As described in Page 16 of the IS/MND, in subsection titled Drainage Improvements, and as shown in Figure 2-2 of the IS/MND, the project includes a drainage ditch. The drainage ditch would collect surface runoff from the NCLF property and would continue across the northern portion of the City's Lot 31 towards the proposed shallow infiltration basin. The infiltration basin would have a maximum slope of 0.33 percent, whereas the drainage ditch will have a slope of at most 0.5 percent. The drainage swales would be approximately 15 feet wide and 2 feet deep, and lined with an erosion control fabric and seeded with native grasses for erosion control. The low slope, and the fact that the drainage ditch would be an earthen ditch covered with grasses, would allow wildlife to cross the drainage ditch. Thus, the drainage ditch would not inhibit wildlife passage as the commenter stated may be possible.

As designed, the drainage ditch and infiltration basin would benefit local wildlife as the drainage ditch and infiltration basin would provide grasses and forbs that would serve as foraging opportunities and/or shelter for certain wildlife species.

- 3-7 The comment recommends minimizing the size of the transmission line maintenance pads and access roads. The transmission tower maintenance pads and gravel maintenance road were designed to meet minimum requirements to successfully perform future access, maintenance, and repair of the transmission towers. Further minimizing the size of the pads and access roads could result in potential safety issues and the inability to access the transmission towers to conduct needed electrical maintenance, which are needed to provide safe and reliable power to SMUD's customers. No changes to the document are necessary.
- 3-8 The comment recommend inserting "and wildlife habitat" after "recreation" as a continuing use of the property. As discussed in the first paragraph on page 23, "[f]uture use of the site may potentially include recreation, pending deeding of the



land to the City, and other utility improvements. Details and funding related to these actions are unknown at this time, cannot be known at the time of release of this document.” Thus, because the specific uses of the project site by the City are unknown, no changes to the document are necessary or appropriate.

- 3-9 The comment requests revisions to the aesthetics section to reflect the project site’s proximity to the Wild and Scenic Lower American River and American River Parkway, as well as the project site’s use as sensitive species wildlife habitat. The project site is located outside of the American River Parkway Plan project boundary (Sacramento County 2008). Visual impacts of the project from the American River and areas within the American River Parkway Plan project boundary are addressed in Section 3.1 of the Draft IS/MND, “Aesthetics.” The comment is correct in stating that the Lower American River is listed as a Wild and Scenic river for its recreation values. However, the project would not affect access to the river or otherwise diminish recreational uses of the waterway or adjacent trails. No changes to the document are necessary.

The commenter states that the Section 3.1.1 should recognize that the project site is habitat for wildlife, including sensitive species. Consistent with the commenter’s request, Section 3.4, “Biological Resources” of the Draft IS/MND, addresses wildlife occurrences, including sensitive species occurrences, on the project site. No changes to the document are necessary.

- 3-10 The comment requests that changes to the Draft IS/MND be made to incorporate contours that mimic a natural riverside setting while facilitating flow of water to the west, as mitigation measures to address visual impacts. CEQA Guidelines Section 15126.4(3) states that mitigation measures are not needed for effects that are not found to be significant. Thus, because no significant impacts on aesthetic resources have been identified, no mitigation measures are required. No changes to the document are necessary.

Please see response to comment 3-11 for a discussion related to the feasibility of incorporating contours into the project site.

- 3-11 The comment recommends revisions to the document to indicate that the project would include incorporation of “contours that mimic a natural riverside setting while facilitating the flow of water to the west.” The NCLF property would be graded so that runoff would drain primarily to the east; west-flowing runoff would be minimized to the extent feasible as addressed in Section 2.3.1 of the Draft IS/MND. The NCLF property would be deeded to the City once the state minimum standards are met for the landfill soil cover. The City has indicated a preference for the landfill soil cover to be constructed with a consistent slope to facilitate future post-remediation maintenance activities such as mowing. Further, contouring to resemble a more natural condition could increase the chances of ponding, erosion, and other accumulation of on-site runoff, which would not be consistent with the requirements associated with closure of a landfill. This comment addresses the design of the project and does not raise environmental issues or concerns regarding the adequacy, accuracy, or

completeness of the environmental document. The comment is noted for consideration by the Board during project approval. No further response is necessary.

- 3-12 The comment references page 39 of the Draft IS/MND and refers to earlier comments in the letter about the drainage ditch. Refer to response to comment 3-6.
- 3-13 The comment states that more natural contours built into the project site, incorporation of native plants, and expansion of habitat areas would be beneficial to sensitive species. Impacts on sensitive species are addressed in Section 3.4 of the Draft IS/MND, "Biological Resources." This section includes a description of the effects of the project on sensitive species, and include mitigation measures that would reduce these impacts to a less-than-significant level. While the comment recommends additional mitigation measures, it is unclear how additional mitigation measures would reduce significant environmental impacts. In addition, given that SMUD is granting the property to the City of Sacramento, the City would have discretion on what types of plantings it chooses to install on the property following the following completion of the project. No changes to the document are necessary.

Please see response to comment 3-10 for a discussion related to incorporation of contours into the project site and response to comment 4-6, for a discussion related to incorporation of native plants into the project site.

- 3-14 The comment recommends continued coordination with officials at Courtyard School to ensure that the project includes sufficient safeguards to protect school children and employees. The project is designed to ensure that construction-related and post-closure activities associated would not pose a threat to human health and the environment. As discussed in Section 3.9, "Hazards and Hazardous Materials" of the Draft IS/MND under discussion c), "...compliance with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials would protect the public health and the environment during construction of the project and use of the haul routes. Existing hazardous materials on the project site, such as contaminated soils and remnants from the former municipal landfill, may present a health risk to construction workers, ...however, this would occur at a distance greater than 0.25 mile from the school and would be required to comply with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials. These regulations are specifically designed to protect the public health and the environment and must be adhered to during project construction and operation." Thus, because construction and operation of the project would not pose a health risk to students or employees at Courtyard School, no changes to the document are necessary.
- 3-15 The comment recommend incorporation of natural contours into the project site. See response to comment 3-10.
- 3-16 The comment summarizes recommendations related to the project description. See responses to comments 3-1 through 3-15.

**SAVE THE AMERICAN RIVER ASSOCIATION**

8836 Greenback lane, Suite C  
Orangevale, CA 95662  
916-936-4555 E-mail [info@sarariverwatch.org](mailto:info@sarariverwatch.org)

February 21, 2021

Sacramento Municipal Utility District  
6201 S Street  
Sacramento, CA 95817  
Attn: Kim Crawford – Delivered via E-mail [kim.crawford@smud.org](mailto:kim.crawford@smud.org)

**RE: Comments on SMUD's North City Landfill Closure Project Draft  
Initial Study and Mitigated Negative Declaration.**

**Save the American River Association (SARA) appreciates the opportunity to comment on the draft initial study and mitigated negative declaration. We are supportive of SMUD's plans to mitigate this site and transfer the property to the City of Sacramento which will make it an addition to Sutter's Landing Park.**

4-1

**We offer the following comments:**

- **The following statement appears on Page 19:**  
"Excavated soil: Excavated soil are not expected to be hauled off site. However, if excavated soil cannot be consolidated into the rough grading of the NCLF property and Lot 31, it would be sampled and the results submitted to the LEA. If hazardous waste is identified, it would remain on-site or otherwise be disposed of in accordance with direction from the LEA (Local Enforcement Agency)."  
The study documents that contaminated soil that exceeds environmental screening levels has been found on the site. Page 110 contains the following statement:  
"... the site contains soil contaminated with metals, petroleum hydrocarbons, and semi-volatile organic compounds were at the surface of the NCLF site; and dieldrin and arsenic exceeding environmental screening levels were found approximately 1.5 feet below ground surface within the Lot 31 parcel. PCBs and

4-2



- |   |                      |
|---|----------------------|
| <p><b>dioxins/furans were also found on site, but in concentrations below environmental screening levels.”</b><br/> <b>SARA’s position is that the contaminated soil should be removed.</b></p>   | <p>4-2<br/>cont.</p> |
| <ul style="list-style-type: none"> <li>• <b>SMUD existing North City Substation on the site is to be dismantled. Once removed, SARA’s position is that there should be extensive boring in that area to determine if contaminated soil exists.</b></li> </ul>   | <p>4-3</p>           |
| <ul style="list-style-type: none"> <li>• <b>East flowing drainage on the property would be directed to a drainage ditch where it would flow to an infiltration pond. SMUD should determine whether wildlife would have difficulty traveling across the ditch. Part of the ditch could be covered providing a path for wildlife to cross the ditch. SARA is pleased that SMUD is going to provide grading so that west flowing water runoff would be minimized and that “no surface runoff would reach the American River or otherwise come in contact with the waters of the state.”</b></li> </ul>   | <p>4-4</p>           |
| <ul style="list-style-type: none"> <li>• <b>The following statement appears on Page 23:</b><br/> <b>“Future use of the site may potentially include recreation, pending deeding of the land to the City, and other utility improvements.”</b><br/> <b>That statement should be rewritten as follows:</b><br/> <b>“Wildlife habitat will be the primary future use of the site along with recreation since the Two Rivers Trail would run through the site.”</b></li> </ul>  | <p>4-5</p>           |
| <ul style="list-style-type: none"> <li>• <b>The following statement appears on Page 43:</b><br/> <b>“...28 special-status wildlife species and 17 special-status plant species have potential to occur in the project area (Appendix B). Species ranges and habitat requirements were further evaluated to determine potential for occurrence on the project site. Because it is highly disturbed, the project site does not contain suitable habitat for any of the special-status plant species. Therefore, no special-status plant species are expected to occur on the project site. Refer to Appendix B for additional detail. Out of the 28 special-status wildlife species, three species are</b></li> </ul> | <p>4-6</p>           |

**considered likely to occur in or immediately adjacent to the project site: valley elderberry longhorn beetle, Swainson's hawk (*Buteo swainsoni*), and white-tailed kite (*Elanus leucurus*)."**  
**SMUD is planning to plant native grasses on the project site. As part of the mitigation, SMUD also should plant wildlife friendly native plant species on the site such as Blue Elderberry shrubs. In addition to the three special-status wildlife species, other birds and wildlife will be using the site.**

4-6  
cont.

- **The surface of the site is predominately flat. American River Parkway stakeholder organizations would like SMUD to incorporate a more natural contour to the final project design that better reflects the subject property's riverside location and future use as part of a riverside park.**

4-7

**Please give careful consideration to SARA's comments. Thank you.**

**Sincerely,**

**Stephen Green  
President**

**Cc: Rob Kerth, SMUD Board of Directors, Ward 5  
Brandon Rose, SMUD Board of Directors, Ward 1  
SARA Board of Directors**

<b>Letter 4</b>	<b>Save the American River Association</b> Stephen Green, President February 21, 2021
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- 4-1 The comment provide introductory remarks to the letter. This comment is noted. No further response is required.
- 4-2 The comment recommends that contaminated soils are removed from the project site. The project is not a clean closure project, which would entail that all waste and contaminated soil is removed. This project would bring a pre-regulation closed disposal site in compliance with current state minimum standards and regulations. The purpose of this project is to cover the waste and contaminated soil with an engineered landfill soil cover. Implementation of the project would reduce the chance for direct contact with waste constituents, minimize potential for release of hazardous materials into the environment, reduce infiltration of rainwater into waste, and improve the quality of stormwater runoff from the site. This project provides a benefit to the environment and public health by these improvements and is consistent with other pre-regulation disposal site closures within the larger 130-acre historical landfill area. Please see Section 3.9, "Hazards and Hazardous Materials" of the Draft IS/MND, for a discussion of impacts related to contaminated soils on the project site.
- 4-3 The comment recommends boring of the project site to determine if contaminated soils exist. As discussed in the second paragraph under Section 2.1, "Background Information," after the new Station E substation is operational, the existing North City substation would be dismantled. Dismantling the existing substation and construction of the new Station E substation were evaluated in a CEQA document prepared in 2014 (SMUD 2014), and are not subject to evaluation in this IS/MND. The project includes demolition of the North City substation concrete slab and piers (see Section 2.3.1 of the Draft IS, "Project Component").

After the North City substation is dismantled, SMUD does not plan to conduct additional soil testing. The North City substation was constructed on top of an area that historically operated as a disposal site, where the City burned waste from 1940 to 1949. As characterized in Draft IS/MND Section 3.9, "Hazards and Hazardous Materials," contaminated soil conditions exist at the NCLF property, including underneath the substation, from historic landfilling at the site. Results from a previous soil investigation for potential PCB contamination within the substation indicated that PCB was detected in two of eight samples ranging from 0.8 to 1 parts per million which is below environmental screening levels (see fourth bullet on page 65 of the Draft IS/MND). There is no evidence that the shallow fill material beneath the substation is contaminated due to the substation. SMUD has no record of a release from substation equipment. By installing the soil cover, the

project would reduce potential impacts on the community by minimizing the potential for release of hazardous materials into the environment.

The comment does not indicate that any significant environmental impact would occur due to implementation of the project. No changes to the Draft IS/MND are necessary.

- 4-4 The comment expresses concern that wildlife may have difficulty traveling across the drainage ditch. Please see response to comment 3-6.
- 4-5 The comment requests that changes to the document to state that future uses of the site consist of wildlife habitat and recreation associated with the Two Rivers Trails. While SMUD intends to deed the property to the City of Sacramento once the state minimum standards for the landfill cover are met, details and funding related to actions the City may take are unknown at this time and cannot be known at the time of release of this document. No changes to the document are necessary.
- 4-6 The comment states that wildlife-friendly native plant species, such as Blue Elderberry shrubs should be planted on the project site, in addition to native grasses, noting that these plants could provide mitigation for the project. The comment correctly states that the project includes planting of natives grasses (see the first bullet on page 18 of the Draft IS/MND). Native grasses are the preferred vegetation type for this project due to their shallow root system. Plant species such as the Blue Elderberry shrub are not preferred due to the potential of deep root systems that have the potential to penetrate the 2-foot soil cover and provide a pathway for stormwater to encounter the capped landfill materials.

In regard to the use of wildlife-friendly native plant species as mitigation for the project, CEQA Guidelines Section 15126.4(3) states that mitigation measures are not needed for effects that are not found to be significant. The comment does not indicate a significant impact that could be mitigated through native plant species plantings; thus it does not need to be incorporated into the document. In addition, given that SMUD is granting the property to the City of Sacramento, the City would have discretion on what types of plantings it chooses to install on the property following completion of the project. No changes to the document are necessary.

- 4-7 The comment recommends incorporated a natural contour into the final project design. See response to comment 3-11.

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### 3 CHANGES TO DRAFT IS/MND TEXT

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This section presents specific text changes made to the Draft IS/MND since its publication and public review. The changes are presented in the order in which they appear in the original document and are identified by the Draft IS/MND page number. Text deletions are shown in strikethrough (~~strikethrough~~), and text additions are shown in underline (underline).

It should be noted that the following revisions do not change the intent or content of the analysis or effectiveness of mitigation measures presented in the Draft IS/MND and do not necessitate recirculation of the Draft IS/MND or preparation of an Environmental Impact Report.

#### 3.1 Changes to Draft IS/MND Text

The title to Mitigation Measure 3.5-1 has been added to read as follows:

**Mitigation Measure 3.5-1: Worker awareness and response for discovery of previously unknown cultural resources**

The title of Mitigation Measure 3.5-2 has been added to read a follows:

**Mitigation Measure 3.5-2: Halt ground disturbance upon discovery of human remains**

Mitigation Measure 3.9-1 has been revised to read as follows:

**Mitigation Measure 3.9-1: Manage accidental discovery of hazardous materials**

*In the event that ~~contaminated soils or~~ unknown potentially hazards items, which were not identified in previous site investigations, are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. SMUD will also consult with other regulatory agencies such as the DTSC or RWQCB, as necessary, to determine the appropriate disposal method and location. If it is determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.*

The text in the first paragraph on page 23 of the Draft IS has been revised to read as follows:

A landfill gas collection and control system, including a flare, would not be required because only low levels of methane have been detected at the project site. Landfill gas would be monitored post-remediation, via landfill gas monitoring probes located along the perimeter of the property, to ensure landfill gas is not migrating offsite. If methane concentrations exceed 5 percent by volume in air at any perimeter monitoring wells, installation of a landfill gas extraction/control system will be required. Future use of the site may potentially include recreation, pending deeding of the land to the City, and other utility improvements. Details and funding related to these actions are unknown at this time, cannot be known at the time of release of this document, and when they are undertaken would constitute separate efforts from the project (i.e., would be analyzed as separate project under CEQA). Thus, because a meaningful evaluation of these speculative activities is not possible, they are not discussed further in this IS/MND.

## **4 MITIGATION MONITORING AND REPORTING PROGRAM**

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### **4.1 Introduction**

This mitigation monitoring and reporting program summarizes identified mitigation measures, implementation schedule, and responsible parties for the SMUD North City Landfill Closure Project (project). SMUD will use this mitigation monitoring and reporting program to ensure that identified mitigation measures, adopted as conditions of project approval, are implemented appropriately. This monitoring program meets the requirements of CEQA Guidelines Section 15074(d), which mandates preparation of monitoring provisions for the implementation of mitigation assigned as part of project approval or adoption.

### **4.2 Mitigation Implementation and Monitoring**

SMUD will be responsible for monitoring the implementation of mitigation measures designed to minimize impacts associated with the Project. While SMUD has ultimate responsibility for ensuring implementation, others may be assigned the responsibility of actually implementing the mitigation. SMUD will retain the primary responsibility for ensuring that the Project meets the requirements of this mitigation plan and other permit conditions imposed by participating regulatory agencies.

SMUD will 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 will ensure that the designated personnel have authority to require implementation of mitigation requirements and will be capable of terminating project construction activities found to be inconsistent with mitigation objectives or project approval conditions.

SMUD and its appointed contractor will also 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 (Mitigation Monitoring and Reporting Program) lists each identified environmental resource being affected, the corresponding monitoring and reporting requirement, and the party responsible for ensuring implementation of the mitigation measure and monitoring effort.

### **4.3 Mitigation Enforcement**

SMUD will 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 upon by SMUD.



**Table 4-1. Mitigation Monitoring and Reporting Program**

Checklist Section	Environmental Criteria	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility	
					Implementation	Monitoring
Biological Resources	a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<p>Mitigation Measure 3.4-1: Avoid Elderberry Shrubs</p> <p><i>To maintain the health and vigor of elderberry shrubs, SMUD shall avoid the elderberry shrubs and implement the following incidental take avoidance measure:</i></p> <ol style="list-style-type: none"> <li><i>No grading would occur within 20 feet of the dripline of the elderberry shrubs.</i></li> </ol> <p><i>SMUD shall implement the following impact avoidance measures for activities conducted between 20 and 100 feet of elderberry shrubs to avoid incidental take during construction:</i></p> <ol style="list-style-type: none"> <li><i>The presence of elderberry shrubs in the construction area and vicinity will be documented on work orders, and the SMUD project manager will be informed.</i></li> <li><i>A qualified biologist shall provide training for all contractors, work crews, and any on-site personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.</i></li> <li><i>A 20-foot exclusion boundary around elderberry shrubs will be clearly flagged or fenced in the field and marked on construction plans, and signs will be posted with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable and must be maintained for the duration of construction.</i></li> <li><i>The excluded zone will be designated an Environmentally Sensitive Area and a biological monitor will be required to supervise rough grading of the infiltration pond. The monitor will have the authority to stop work if personnel are out of compliance with the valley elderberry longhorn beetle avoidance measures or if there is a risk that incidental take may occur.</i></li> <li><i>Watering of the site for dust suppression will help reduce the amount of dust that could affect the health and vigor of the elderberry shrubs.</i></li> </ol>	Prior to and during construction	During construction	SMUD Environmental Services (communicating location of elderberry shrubs and conducting onsite training); and Construction Contractor (remainder of mitigation measure – establish exclusion boundary and dust suppression)	SMUD Construction Management Inspector (CMI)
Biological Resources	a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<p>Mitigation Measure 3.4-2: Avoid or Minimize Effects on Nesting Swainson's Hawk, White-Tailed Kite, and Other Nesting Birds</p> <p><i>The following measures shall be implemented to avoid or minimize loss of active Swainson's hawk, white-tailed kite, and other raptor nests:</i></p> <ul style="list-style-type: none"> <li><i>If construction (including vegetation removal) would occur during the nesting season (between February 1 and August 31), a SMUD project biologist/biological monitor shall conduct pre-construction nesting bird surveys to determine whether birds are nesting in the work area or within 0.25 mile for Swainson's hawk and 500 feet for all other nesting birds of the project site.</i></li> <li><i>The pre-construction nesting bird surveys will identify on-site bird species and any nest-building behavior. If no nesting Swainson's hawks are found on or within 0.25 mile of the project site or if no nesting birds are found on</i></li> </ul>	Prior to and during construction	Prior to and during construction	SMUD Environmental Services (pre-construction nesting bird surveys and establish no-disturbance buffers); and Construction Contractor (avoid impacts on identified nests and communicated to SMUD if active nests found during construction)	SMUD CMI

Checklist Section	Environmental Criteria	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility	
					Implementation	Monitoring
		<p>or within 500 feet of the project site during the pre-construction clearance surveys, construction activities may proceed as scheduled.</p> <ul style="list-style-type: none"> <li>If pre-nesting behavior is observed but an active nest of common nesting bird has not yet been established (e.g., courtship displays but no eggs in a constructed nest), a nesting bird deterrence and removal program will be implemented. Such deterrence methods include removal of the previous year's nesting materials and removal of partially completed nests in progress. After a nest is situated and identified with eggs or young, it is considered to be "active," and the nest cannot be removed until the young have fledged.</li> <li>If active Swainson's hawk nests are found within the nest survey area, the construction contractor shall avoid impacts on such nests by establishing a no-disturbance buffer around the nest. Monitoring of the nest by a qualified biologist during construction activities shall be required if the activity has the potential to adversely affect the nest. Based on guidance for determining a project's potential for affecting Swainson's hawks (Swainson's Hawk Technical Advisory Committee 2000), projects in urban areas have a low risk of adversely affecting nests greater than 600 feet from project activities. Therefore, 600 feet is anticipated to be the adequate buffer size for protecting nesting Swainson's hawks from disturbances associated with the project. However, the qualified biologist shall consult with CDFW to confirm the adequacy of the no-disturbance buffer and/or whether the buffer may be reduced based on the biologist's professional judgment.</li> <li>If an active white-tailed kite nest or nest of a common bird species is found on or within 500 feet of the project site during construction, a "no-construction" buffer zone will be established around the active nest (usually a minimum radius of 50 feet for passerine birds and 500 feet for raptors) to minimize the potential for disturbance of the nesting activity. The project biologist/biological monitor will determine and flag the appropriate buffer size required, based on the species, specific activities being conducted, tolerances of the species, and the nest location. Project activities will resume in the buffer area when the project biologist/biological monitor has determined that the nest(s) is (are) no longer active or the biologist/biological monitor has determined that with implementation of an appropriate buffer, work activities would not disturb the bird's nesting behavior.</li> <li>If special-status bird species are found nesting on or within 500 feet of the project site, the project biologist/biological monitor shall notify SMUD's project manager to notify CDFW or USFWS, as appropriate, within 24 hours of the first nesting observation.</li> </ul>				
Cultural Resources	b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<p>Mitigation Measure 3.5-1: Worker awareness and response for discovery of previously unknown cultural resources</p> <p><i>In the event that a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or 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</i></p>	During construction	During construction	Construction Contractor	SMUD CMI

Checklist Section	Environmental Criteria	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility	
					Implementation	Monitoring
		<p>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. If the find is a prehistoric archeological site, the appropriate Native American group shall be notified. 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 an 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 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.</p> <p>Historic-period pieces (e.g., bottles, bricks, etc.), if encountered, are only considered potentially significant and requiring evaluation pursuant to this measure within the Lot 31 portion of the project site.</p>				
Cultural Resources	c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<p>Mitigation Measure 3.5-2: Halt ground disturbance upon discovery of human remains</p> <p>Consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act, if suspected human remains are found during construction, all work shall be halted in the immediate area and place an exclusion zone (lath and flagging) around the burial. The Principal Investigator will notify the City of Sacramento Police Department, who will in turn notify the county coroner to determine the nature of the remains. The coroner shall examine all discoveries of suspected human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she shall contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC shall then assign a most likely descendant to serve as the main point of Native American contact and consultation. Following the coroner's findings, the MLD, in consultation with the City, shall determine the ultimate treatment and disposition of the remains.</p>	During construction	During construction	Construction Contractor (observation and stopping work if discovery of human remains)	SMUD CMI
Hazards and Hazardous Materials	b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<p>Mitigation Measure 3.9-1: Manage accidental discovery of hazardous materials</p> <p>In the event that contaminated soils or potentially hazards items are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. If it is determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.</p>	During construction	During construction	Construction Contractor (observation and stopping work if unknown potentially hazards items are discovered) and SMUD (if unknown potentially hazards items are discovered by construction contractor)	SMUD CMI

Checklist Section	Environmental Criteria	Mitigation Measures	Implementation Duration	Monitoring Duration	Responsibility	
					Implementation	Monitoring
Tribal Cultural Resources	b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<p>Mitigation Measure 3.18-1: Avoid Tribal Cultural Resource; Post Ground Disturbance</p> <p><i>A minimum of seven days prior to beginning earthwork, clearing and grubbing, or other soil disturbing activities, SMUD shall contact the Tribes with the proposed earthwork start-date and a Tribal Representative or Tribal Monitor shall be invited to inspect the project site, including any soil piles, trenches, or other disturbed areas, within the first five days of groundbreaking activity, or as appropriate for the type and size of project. During this inspection, a Tribal Representative or Tribal Monitor may provide an on-site meeting for construction personnel information on TCRs and workers awareness brochure.</i></p> <p><i>If any TCRs are encountered during this initial inspection, or during any subsequent construction activities, Mitigation Measure 3.18-2 shall be implemented.</i></p>	Prior to and during construction	Prior to and during construction	SMUD Environmental Services and Tribal representative or monitor	SMUD Environmental Services
Tribal Cultural Resources	b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<p>Mitigation Measure 3.18-2: Unanticipated Discoveries of Potential TCRs</p> <p><i>If any suspected TCRs are discovered during ground disturbing construction activities, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Appropriate Tribal Representative(s) shall be immediately notified and shall determine if the find is a TCR (pursuant to PRC section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary.</i></p> <p><i>Preservation in place is the preferred alternative under CEQA and the Tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project area where they will not be subject to future impacts. The Tribe does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a Tribal Cultural Resource may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.</i></p>	During construction	During construction	Construction Contractor (observing for suspected TCRs during ground disturbing construction and stopping work if suspected TCR found); and SMUD and Tribal representative (if suspected TCRs are found)	SMUD CMI

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## 6 REFERENCES

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Sacramento County. 2008. *American River Parkway Plan*. Available:  
<https://planning.saccounty.net/LandUseRegulationDocuments/Documents/AmericanRiverParkwayPlan.pdf>. Accessed March 2021

Sacramento Municipal Utility District. 2014. *Substation E Substation Initial Study/Mitigated Negative Declaration*.

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# Sacramento Municipal Utility District

## North City Landfill Closure Project

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Draft Initial Study and Mitigated Negative Declaration •  
January 2021

Powering forward. Together.



# Sacramento Municipal Utility District

## North City Landfill Closure Project

Draft Initial Study and Mitigated Negative Declaration • January 2021

**Lead Agency:**

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**LIST OF ABBREVIATIONS**

AB	Assembly Bill
BACT	Best Available Control Technology
BMP	best management practice
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CalEnviroScreen	California Communities Environmental Health Screening Tool
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Sacramento
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
DAC	disadvantaged community
Draft IS/MND	draft initial study/mitigated negative declaration
DSH	diameter at standard height
DTSC	California Department of Toxic Substances Control
ESA	federal Endangered Species Act
ESL	Environmental Screening Level
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
Framework	<i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)</i>
FTA	Federal Transit Authority
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse gas
GHG	greenhouse gas
in/sec	inch per second
lbs/day	pounds per day
LEA	local enforcement agency
Lot 31	Lot 31 disposal site

MCL	Maximum Contaminant Limit
MMRP	mitigation monitoring and reporting program
MTCO <sub>2e</sub>	metric tons per year of CO <sub>2</sub> equivalent
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCLF	North City Landfill
NO <sub>2</sub>	nitrogen dioxide
NOI	notice of intent
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
OPR	Governor's Office of Planning and Research
PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
ROG	reactive organic gases
SGMA	Sustainable Groundwater Management Act
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO <sub>2</sub>	sulfur dioxide
SSHSP	site-specific health and safety plan
SVAB	Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
TAC	toxic air contaminant
tpy	tons per year
UAIC	United Auburn Indian Community
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration decibels
WPCP	water pollution control plan

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## **1.0 INTRODUCTION**

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### **1.1 Project Overview**

The Sacramento Municipal Utility District (SMUD) is proposing a landfill closure project of two properties with historic landfill activities, in compliance with California Department of Resources Recycling and Recovery (CalRecycle) requirements and the California Code of Regulations (CCR) Title 27 solid waste regulations, as regulated by Sacramento County environmental management Department (EMD) as the Local Enforcement Agency (LEA) in Sacramento County. The project would include demolition of concrete slab and piers, grading the site for proper drainage, importing soil for the soil cover, constructing a gravel maintenance road, transmission tower maintenance pads and the final soil cover, and developing site drainage improvements and erosion control. Upon completion of landfill closure activities, a post-remediation site monitoring and maintenance plan would be implemented as part of the project to address issues such as site inspections, environmental monitoring, cover maintenance, utility construction, and maintenance of existing and future utilities.

### **1.2 Purpose of Document**

This draft initial study/mitigated negative declaration (Draft IS/MND) has been prepared by SMUD to evaluate potential environmental effects resulting from the North City Landfill Closure Project (project). Chapter 2, “Project Description,” presents the detailed project information.

This document has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (CCR Section 15000 et seq.). Under CEQA, an IS can be prepared by a lead agency to determine if a project may have a significant effect on the environment (CEQA Guidelines Section 15063[a]), and thus to determine the appropriate environmental document. For this project, the lead agency has prepared the following analysis that identifies potential physical environmental impacts and mitigation measures that would reduce impacts to a less-than-significant level. SMUD is the lead agency responsible for complying with the provisions of CEQA.

In accordance with the provisions of CEQA, SMUD is distributing a notice of intent (NOI) to adopt a MND to solicit comments on the analysis and mitigation measures presented in this Draft IS/MND. The NOI will be distributed to property owners within a minimum of 1,000 feet of the project and 200 feet of the haul route, as well as to the State Clearinghouse/Governor’s Office of Planning and Research and each responsible and trustee agency. This Draft IS/MND will be available for review and comment from January 21, 2021 to February 22, 2021.

Written comments (including those submitted via e-mail) must be received by close of business on February 22, 2021. Letters should be addressed to:

SMUD–Environmental Services  
P.O. Box 15830 MS H201  
Sacramento, CA 95852-1830  
Attn: Kim Crawford

E-mail comments should be addressed to [kim.crawford@smud.org](mailto:kim.crawford@smud.org). Anyone with questions regarding the NOI or Draft IS/MND may call Kim Crawford at 916.732.5063.

Digital copies of the NOI and Draft IS/MND are available at <https://www.smud.org/CEQA>. Hard copies of the NOI and Draft IS/MND are available for public review 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

### **1.3 Public Review Process**

This Draft IS/MND is being circulated for a 30-day public comment period and is available at the locations identified above. Following the 30-day public review period, a final IS/MND will be prepared, presenting written responses to comments received on significant environmental issues. Before SMUD's Board of Directors makes a decision on the project, the final IS/MND will be provided to all parties commenting on the Draft IS/MND.

### **1.4 SMUD Board Approval Process**

The SMUD Board of Directors must adopt the IS/MND and approve the mitigation monitoring and reporting program (MMRP) before it can approve the project. The project and relevant environmental documentation will be formally presented at a SMUD Environmental Resources and Customer Service Committee meeting for information and discussion. The SMUD Board of Directors will then consider adopting the final IS/MND and MMRP at its next regular meeting. Meetings of the SMUD Board of Directors are generally held on the third Thursday of each month.



## 1.5 Document Organization

This Draft IS/MND is organized as follows:

**Chapter 1, “Introduction”:** This chapter provides an introduction to the environmental review process and describes the purpose and organization of this document.

**Chapter 2, “Project Description”:** This chapter provides a detailed description of the project.

**Chapter 3, “Environmental Checklist”:** This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines whether the project would result in no impact, a less-than-significant impact, or a less-than-significant impact with mitigation incorporated. Where needed to reduce impacts to a less-than-significant level, mitigation measures are presented.

**Chapter 4, “Environmental Justice Analysis”:** Although not required by CEQA, SMUD has elected to prepare an evaluation of potential environmental justice issues related to the project.

**Chapter 5, “List of Preparers”:** This chapter lists the organizations and people who prepared the document.

**Chapter 6, “References”:** This chapter lists the references used in preparation of this Draft IS/MND.

## 1.6 Environmental Factors Potentially Affected

Impacts on the environmental factors below are evaluated using the checklist included in Chapter 3. SMUD determined that the environmental factors checked below would be less than significant with implementation of mitigation measures. It was determined that the unchecked factors would have a less-than-significant impact or no impact.

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Aesthetics                      | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality                                   |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources      | <input type="checkbox"/> Energy  |
| <input type="checkbox"/> Geology / Soils                 | <input type="checkbox"/> Greenhouse Gas Emissions           | <input checked="" type="checkbox"/> Hazards & Hazardous Materials      |
| <input type="checkbox"/> Hydrology / Water Quality       | <input type="checkbox"/> Land Use / Planning                | <input type="checkbox"/> Mineral Resources                             |
| <input type="checkbox"/> Noise                           | <input type="checkbox"/> Population / Housing               | <input type="checkbox"/> Public Services                               |
| <input type="checkbox"/> Recreation                      | <input type="checkbox"/> Transportation / Traffic           | <input checked="" type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities / Service Systems     | <input type="checkbox"/> Wildfire                           | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

## 1.7 Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed project could not have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

January 21, 2021

Date

Kim Crawford  
Printed Name

Environmental Specialist  
Title

Sacramento Municipal Utility District  
Agency

---

## **2.0 PROJECT DESCRIPTION**

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SMUD is proposing a landfill closure project, including installation of a soil cover, of SMUD's approximately 12-acre North City Landfill (NCLF) site and 1.5-acres of the approximately 3-acre City of Sacramento (City) owned Lot 31 site (hereafter the "project"). The project would be performed in compliance with the requirements established by CalRecycle and CCR Title 27 solid waste regulations, and regulated by Sacramento County EMD as the Local Enforcement Agency in Sacramento County. Upon construction of the soil cover and drainage improvements, a post-remediation site monitoring and maintenance plan would be implemented to address issues such as site inspections, environmental monitoring, cover maintenance, utility construction, and maintenance of existing and future utilities.

In 2020, SMUD and the City entered into an agreement allowing SMUD to use City property identified as Lot 31, located immediately adjacent and to the east of the far northern end of the NCLF property, to be used for construction of an infiltration pond for control of stormwater runoff from the NCLF property.

### **2.1 Background Information**

The NCLF property was historically operated as a disposal site, where burning of waste occurred, by the City from approximately 1940 to 1949. The City's discharges consisted primarily of garbage, rubbish, and street cleaning wastes. In 1950, SMUD purchased the NCLF property from the City and the Western Pacific Railroad Company for use as an electrical substation. SMUD constructed the North City substation in the early 1950s over the southern end of the City's historical landfill and used the northern portion of the property to dispose of soil and construction and demolition debris between 1980 and 1993 (Brown and Caldwell 2015).

In 2013 SMUD purchased several parcels south and southeast of the North City substation to construct a replacement substation (Station E) because the North City substation has reached its planned operational end of life. After the new Station E substation is operational, the existing North City substation would be dismantled. Dismantling the existing substation and construction of the new Station E substation were evaluated in a CEQA document prepared in 2014 (SMUD 2014), and are not subject to evaluation in this IS/MND.

Lot 31 is part of a larger area that was historically used for landfill operations and appears to be the northern edge of disposal activities. The area received construction and demolition materials prior to 1979. Between approximately 1981 and 1986 Lot 31 and the land to the south were used for a stormwater retention basin. In 1996, the City took ownership of the 3 acres of land currently known as Parcel 031, which includes Lot 31, from Blue Diamond Growers.

The limit of waste of historic landfill materials at the NCLF property is approximately 508,000 square feet or 11.66 acres and generally extends north along the Union Pacific Railroad tracks to the west and bounded by the Blue Diamond Growers property and the City's Lot 31 to the east. The limit of waste within SMUD's parcel limits is approximately 461,700 square feet (ft<sup>2</sup>) or 10.6 acres. Lot 31 is reported to contain waste over approximately 65,300 square feet or 1.5 acres. In-place landfill materials associated with the NCLF property generally consist of 3 to 18 feet of construction and demolition debris overlying approximately 8 to 19 feet of municipal waste. This information is based upon site disposal records and has been verified through several site exploratory investigations (Brown and Caldwell 2015, Kleinfelder 2011). The NCLF property and Lot 31 do not have a final cover or liner system because neither was required by regulations associated with solid waste disposal when the sites were in use.

## **2.2 Project Location**

The project consists of two separate parcels: the NCLF property to the west and Lot 31 to the east (hereafter the "project site"). The project site is located at 20th Street and North B Street in Sacramento, California and is bounded by the Union Pacific Railroad tracks and right-of-way to the west, the American River and levee to the north, undeveloped parcels owned by the City of Sacramento and Blue Diamond Growers to the east, and SMUD-owned property to the south and southeast (Figure 2-1). The New Era Park, Boulevard Park, and Marshall School neighborhood of Sacramento is located south of the project site.

The project site is located on Section 31 of Township 9 North, Range 5 East, of the Sacramento East U.S. Geological Survey 7.5-minute topographic quadrangle, Mount Diablo Baseline and Meridian. The centroid coordinates of the project site are 38°35'10.31" North, 121°28'23.45" West.

Regional access to the project site is obtained from Business 80. Local access to the project site is obtained through gravel roadways that connect the project site to 28th Street near Sutter's Landing Regional Park (Figure 2-1).

## **2.3 Project Description**

### **2.3.1 Project Components**

The project involves closure of two properties with historic landfill activities. Remediation of the NCLF property, including demolition of the North City substation concrete slab and piers, regrading of the site, placement of soil cover, drainage improvements, and installation of gravel maintenance road and transmission tower maintenance pads. The project also includes remediation of Lot 31, consisting of regrading the site, constructing an infiltration pond, making drainage improvements, and placing soil cover over areas that contain buried construction and demolition waste. These project features are depicted in Figure 2-2 and consist of five primary components:

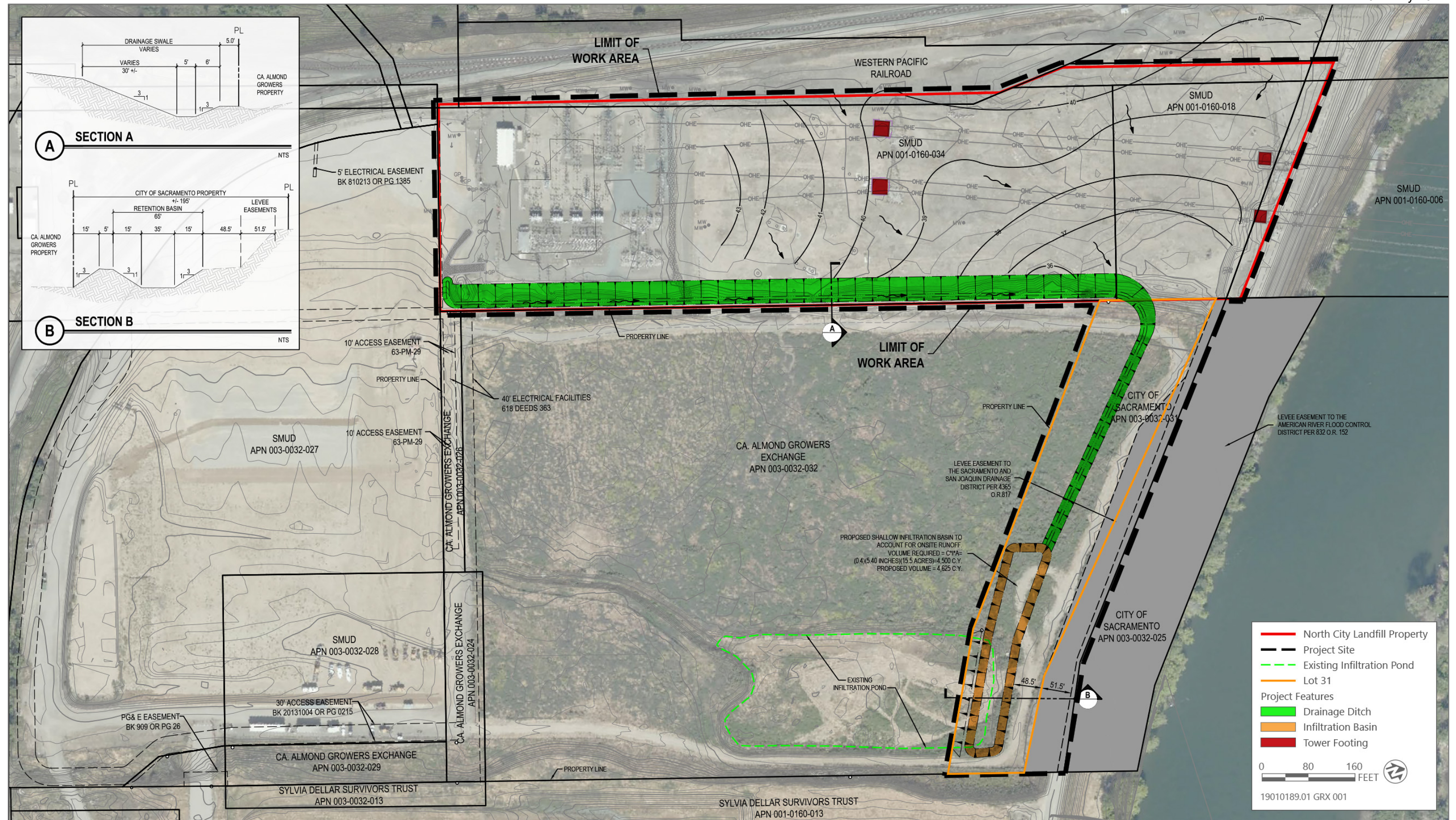




Source: Compiled by Ascent in 2020

**Figure 2-1 Project Location**





Source: Compiled by Ascent in 2020

**Figure 2-2 Project Features**







- site preparation,
- concrete demolition,
- rough site grading,
- soil cover placement, and
- drainage improvements.

### *Site Preparation*

Site preparation would include clearing and grubbing of the site where the rough grading would be necessary to construct the proposed drainage ditch and infiltration pond. In addition, the existing perimeter fences and vegetation would be removed, and soil and debris stockpiles would be relocated/consolidated to provide access to the existing landfill surface. The perimeter fences would be reinstalled after placement of the final cover and completion of the proposed drainage features.

### *Concrete Demolition*

The concrete slab and piers from the dismantled North City substation would either be (1) broken up and removed for recycling, (2) broken up and left in place or (3) broken up and stockpiled for use in the rough grading activities.

### *Rough Site Grading*

Substation concrete debris may be consolidated on the NCLF property over the existing landfill surface for use as part of the landfill rough grading. Waste (i.e., soil and construction and demolition debris) that is excavated as part of the landfill rough grading of the east slope of the landfill would be consolidated over the landfill surface as part of the landfill rough grading.

The site contains approximately 15,000 cubic yards of stockpiled clean soil (sampled, analyzed and accepted for use), which would be used for the rough site grading of the NCLF property. In addition, existing landfill surface up to a maximum depth of 4.75 feet may be redistributed onsite to achieve the desired finished site grading. Finished rough site grading will have a minimum slope of 2 percent that would reflect the site finished grading plan, and would be 2 feet lower than final grades. All imported soils would be sampled and analyzed, the results of which would be reviewed and approved by the LEA before use on the project site.

### *Soil Cover Placement*

Approximately 40,000 cubic yards of soil would be required for final grading and construction of the soil cover for the NCLF property, with an additional approximately 10,000 cubic yards required for the Lot 31 final grading and soil cover. Soil would be

hauled to the site at a maximum rate of 50 truck trips per day during the soil cover placement activities. All imported soils would be sampled and analyzed, the results of which would be reviewed and approved by the LEA before use on the project site.

A 2-foot-thick soil cover would be placed and compacted over rough grades, resulting in a surface with a minimum slope of 2 percent to allow for drainage from the site toward the constructed drainage ditch and infiltration pond. The cap would be a monofill cover—that is, constructed as a uniform soil layer and compacted to the same requirements as the rough grading activities.

As shown in Figure 2-2, the project site contains four electrical transmission line tower footings. Upon completion of the soil cover placement, maintenance pads would be constructed around the transmission towers. Finally, gravel maintenance roads would be developed to provide access to the transmission towers and maintenance pads.

### *Drainage Improvements*

The NCLF property would be graded so that runoff would drain primarily to the east, as depicted in Figure 2-2. East-flowing runoff would be collected in the east drainage ditch of the NCLF property and directed to the infiltration pond located on Lot 31. West-flowing runoff would be collected by the Western Pacific Railroad's surface water collection system, which has excess drainage capacity. Surface water runoff to the west would be minimized to the extent feasible. Grading along the edges of the project site would match that of the adjacent properties and would be performed such that no surface runoff would reach the American River or otherwise come into contact with waters of the state.

Drainage ditches would be designed to accommodate stormwater runoff during a 100-year storm event. They would have a minimum slope of 0.5 percent and 6 inches of freeboard. The infiltration pond on Lot 31 would be sized to provide 1 foot of freeboard and would be located outside of levee and City of Sacramento trail easements and future trail requirements. Drainage ditches would be lined with an erosion control fabric and seeded with native grasses for erosion control. The infiltration pond would remain unlined and would be seeded. The maximum approximate excavation depth required for drainage improvements would be 11.5 feet along the eastern slope of the NCLF property. The drainage ditch and infiltration pond would require a maximum cut of approximately 7 feet below ground surface.

### **2.3.2 Project Construction**

Construction equipment and the materials staging area would be located adjacent to the project site on SMUD Station E property, located immediately south of the NCLF property. During construction, access to the site would be maintained, with the primary access for construction equipment, deliveries, and workers from 28th Street, near Sutter's Landing Regional Park. Trucks and construction equipment would enter and exit the project site along existing gravel roadways, as shown in Figure 2-3.





Source: compiled by Ascent in 2020

**Figure 2-3 Proposed Haul Routes**

Secondary access for the project site would be at C and 20<sup>th</sup> Streets. Construction would require an average daily worker population of approximately 10 workers, with up to approximately 30 workers during peak construction activities associated with on-site demolition, regrading, and heavy equipment deliveries. Equipment such as scrapers, dozers, compactors, loaders, and excavators would be used to construct the project.

### **2.3.3 Project Schedule**

The project is anticipated to begin during the second quarter of 2022 and would be completed by late 2022, involving construction over a period of 6–9 months. Construction intensity and hours would be in accordance with the City's Noise Ordinance, contained in Title 8, Chapter 8.68 of the Sacramento City Code. Construction would be limited to the hours between 7 a.m. and 6 p.m. on Monday through Saturday and between the hours of 9 a.m. and 6 p.m. on Sunday.

### **2.3.4 On-Site Environmental Controls**

#### **2.3.4.1 Water Pollution Control Plan**

As noted above, on-site drainage would be redirected toward the proposed drainage ditch and infiltration pond. Runoff from the project would not come into contact with any waters of the state or United States. Thus, there would be no construction general permit required from the State Water Resources Control Board. This project would not trigger the need for a grading permit from Sacramento County. Regardless, SMUD is committed to implement a water pollution control plan (WPCP) during construction to prevent sediment from leaving the project site. The WPCP would identify best management practices (BMPs) that address excavation areas, stockpile areas, street entrances and exits, construction vehicle maintenance areas, water tanks, dust suppression activities, and postconstruction site stabilization. The WPCP features are summarized as follows.

**Excavation and fill areas:** Excavation activities would be performed such that no sediment enters or exits active excavation and fill work areas. The following or similarly effective BMPs would be implemented:

- hydroseeding with native grasses,
- gravel bags,
- straw wattles and/or straw bales,
- loose straw soil covering,
- temporary drainage ditches,
- grading,



- low berms,
- silt fences, and
- lining of ditches with erosion control fabric.

**Stockpile areas:** As appropriate, stockpiled soil and debris would be covered when not actively in use, before forecasted rain, and during rain events to protect against wind and stormwater erosion.

**Excavated soil:** Excavated soil are not expected to be hauled off site. However, if excavated soil cannot be consolidated into the rough grading of the NCLF property and Lot 31, it would be sampled and the results submitted to the LEA. If hazardous waste is identified, it would remain on-site or otherwise be disposed of in accordance with direction from the LEA.

**Street entrances and exits:** Primary access to the project site would be obtained through existing gravel roads connected to 28th Street near Sutter's Landing Regional Park and located adjacent to the American River (Figure 2-3). Secondary access for the project site would be from C and 20<sup>th</sup> Streets. The following BMPs would be implemented to reduce distribution of sediment onto streets:

- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit the speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment-trapping device before discharge.
- Design a stabilized entrance/exit to support the heaviest vehicles and equipment that would use it.
- Select construction access stabilization materials (e.g., aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions.
- Do not use asphalt concrete grindings for the stabilized construction access/roadway.
- Require that all employees, subcontractors, and suppliers use the stabilized construction access.

The construction contract would include weekly inspection requirements to ensure that the following regular activities are performed:

- Sweep or vacuum the paved entrance roads to remove visible accumulated sediment.
- Remove aggregate, and separate and dispose of sediment if the construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage, and repair it as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at the completion of construction.

Other temporary sediment control BMPs include:

- silt fence,
- fiber rolls,
- gravel bag berm,
- sandbag barrier,
- straw bale barrier, and
- storm drain inlet protection.

**Construction vehicle maintenance areas:** Maintenance and servicing of construction equipment is a potential source of oils and metals. During project construction, bulk storage of fuels and oils would not occur in areas with the potential for off-site discharge. A service truck would be used to fuel construction equipment. If any maintenance is performed at the site, an area would be designated and precautions taken to minimize spillage of fuels and oils. Absorbent materials and storage bins would be available to clean up minor spills if any occur during maintenance of equipment or fueling operations. These areas would be frequently monitored for any signs of release, such as staining.

Spill prevention and control would be implemented to contain and clean up spills and prevent material discharges to the storm drain system. Spill control procedures are implemented any time chemicals or hazardous substances are stored on the construction site, including, at a minimum, the following materials:

- soil stabilizers/binders,
- dust palliatives,
- herbicides,
- growth inhibitors,
- fertilizers,
- deicing/anti-icing chemicals,
- fuels,
- lubricants, and
- other petroleum distillates.

**Water tanks:** Water tanks for the project would be placed on SMUD Station E property, immediately south of the NCLF property. Water tanks used to provide water for dust suppression activities would be a potential source of non-stormwater discharges from the site. When water tanks are used, they would be stored away from the site boundary, when feasible, in areas with no potential for discharge, to prevent any unexpected releases from leaving the site. In addition, tanks would be routinely inspected to verify the absence of leaks.

**Dust suppression activities:** Dust control water would be applied uniformly and lightly to prevent muddy, slippery, or other hazardous conditions. The application would be frequent enough to adequately control nuisance dust; however, excessive application that may affect excavation or compaction operations would be avoided.

Dust control measures would follow the *Stormwater Best Management Practice Handbook: Construction*, prepared by the California Stormwater Quality Association. In addition, the dust control measures would satisfy the requirements of the Fugitive Dust Rule 403 set forth by the Sacramento Metropolitan Air Quality Management District (SMAQMD). These measures would be consistent with the best management practices and best available control technology practices required by SMAQMD.

#### 2.3.4.2 *Soil Stockpile Management Plan*

A soil stockpile management plan would be required from the contractor before movement of any stockpiled soil or any excavation. This plan would address the movement, relocation, staging, and use of soil stockpiles on the project site. The following information would be included in the plan and would be subject to review and approval by the project engineer and SMUD:

- a detailed construction schedule identifying stockpiling stages pertaining to the landfill surface;
- identification of locations where stockpiled soil may be placed/relocated to before and during construction;
- dust and erosion control measures related to the movement and use of stockpiles; and
- processing, mixing, or separation practices of stockpiled soil to provide improved uniformity.

#### *2.3.4.3 Site Specific Health and Safety Plan*

A site-specific health and safety plan (SSHSP) would be prepared before the start of construction-related activities. The SSHSP would be subject to approval by a Certified Industrial Hygienist. The contents of the SSHSP would include:

- requirements related to worker use of personal protective equipment,
- general field safety procedures,
- standard operating procedures for the handling of potentially hazardous materials, and
- worker safety training requirements.

The SSHSP also requires that all activities associated with the project would be overseen by a health and safety monitor (H&S monitor). The H&S monitor would provide safety briefings to construction workers that would address site conditions, possible hazards, and safety measures provided in the SSHSP. In addition, the H&S monitor would be charged with operation of a 4-gas meter to determine methane, oxygen, volatile organic compounds, and hydrogen sulfide concentrations. In the case that the 4-gas meter indicates high levels of noxious gases, the H&S monitor would be responsible for alerting all construction site personnel and providing direction for appropriate actions.

#### *2.3.4.4 Post-remediation Monitoring and Maintenance Plan*

Upon completion of remediation activities, a post-remediation monitoring and maintenance plan would be implemented to address issues such as:

- groundwater and landfill gas perimeter migration monitoring,
- transmission tower access and maintenance, and
- drainage and soil cover inspection and maintenance.



A landfill gas collection and control system, including a flare, would not be required because only low levels of methane have been detected at the project site. Landfill gas would be monitored post-remediation, via landfill gas monitoring probes located along the perimeter of the property, to ensure landfill gas is not migrating offsite. If methane concentrations exceed 5 percent by volume in air at any perimeter monitoring wells, installation of a landfill gas extraction/control system will be required. Future use of the site may potentially include recreation, pending deeding of the land to the City, and other utility improvements. Details and funding related to these actions are unknown at this time, cannot be known at the time of release of this document, and when they are undertaken would constitute separate efforts from the project (i.e., would be analyzed as separate project under CEQA). Thus, because a meaningful evaluation of these speculative activities is not possible, they are not discussed further in this IS/MND.

## 2.4 Project Objectives

The objectives of the project are to:

- remediate the NCLF property and Lot 31 in compliance with requirements established by CalRecycle and select parts of the CCR Title 27 solid waste regulations and regulated by Sacramento County EMD as the LEA,
- minimize impacts on nearby sensitive receptors,
- reduce the potential impacts on public health and the environment, and
- receive approval of remediation construction activities.

## 2.5 Potential Permits and Approvals Required

Elements of the project could be subject to the permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of this IS/MND and determining whether the project should be approved. The following agencies could require permits or approvals as part of project implementation:

- **CalRecycle:** review of the remediation plan and the post-remediation monitoring and maintenance plan
- **Sacramento County Environmental Management Department, as LEA:** approval of the remediation plan and the post-remediation monitoring and maintenance plan
- **California Regional Water Quality Control Board, Central Valley Region:** review and approval of the remediation plan and the post-remediation monitoring and maintenance plan

- **California Department of Transportation:** issues permits for movement of oversized or excessive loads on state highways

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### 3.0 ENVIRONMENTAL IMPACT EVALUATION

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#### 3.0 Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less-Than-Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

- c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
- 9. The explanation of each issue should identify:
  - a) the significance criteria or threshold, if any, used to evaluate each question; and
  - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

### 3.1 Aesthetics

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
<b>I. Aesthetics.</b>				
Except as provided in Public Resources Code Section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.1.1 Environmental Setting

Aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Aesthetic impacts may occur depending on the extent to which a project's presence would negatively alter the perceived visual character and quality of the environment.

The project site is approximately 13.5 acres in size and is relatively flat and open. Surrounding land uses are primarily residential, recreational, or industrial in nature, although no residential uses border the project site. The nearest sensitive receptors are the single-family residences west of the project site, the closest residence being approximately 780 feet from the nearest project site boundary. Other residential receptors located more distant from the project site include single-family residences in the New Era Park neighborhood, located approximately 930 feet south of the nearest project site boundary. The project site is bounded by the Western Pacific Railroad track and right-of-way to the west, the American River and levee to the north, undeveloped parcels owned by Blue Diamond Growers and the City of Sacramento Lot 31 to the east, and SMUD-owned property to the south and southeast (Figure 2-2). The Boulevard Park neighborhood of Sacramento is located south of the project site.

The project site consists of two separate parcels: the NCLF property to the west and the City of Sacramento Lot 31 to the east. The NCLF property contains 15,000 cubic yards of stockpiled soils, sparse vegetation, concrete, and other debris. The North City substation is currently located on the project site, but will be decommissioned and dismantled as part of a different project before the start of the proposed project. High-voltage power lines traverse the NCLF property in a north/south direction. The eastern portion of the project site, City of Sacramento Lot 31, is characterized by relatively flat terrain, low-lying vegetation, and stockpiled soil. The NCLF property is located at a higher elevation than City of Sacramento Lot 31. The project site is surrounded by chain-link fencing.

Views of the project site are limited, in part because access to the site can only be gained by walking along the American River levee. Public views of the site are only available from the American River levee located along the northern boundary of the project site. Private views are available from the adjacent access roads and from the Western Pacific Railroad tracks west of the project site, including individuals aboard trains travelling to and from the downtown Sacramento. The site is not visible to travelers from across the American River because of tree coverage on the banks. Because the project site is located on an elevated plateau compared to lands to the south, and set back from the elevated railroad grade, it is not visible from the New Era Park, Boulevard Park, and Marshall School neighborhood that are located to the south.

Views from the project site of the surrounding area are dominated by industrial land uses and vacant lots to the south and southeast. Views of the American River to the north are largely precluded by the existing levees and tree coverage along the river. Views from the project site to the west include the Western Pacific Railroad tracks and an assortment of industrial buildings and uses, while views to the south consist of construction associated with SMUD's new Station E substation and Sacramento's tree canopy from the City of Sacramento Lot 31 property and the downtown Sacramento skyline from the project site.

### **3.1.2 Discussion**

#### **a) Have a substantial adverse effect on a scenic vista?**

**Less than Significant.** The project site is located in a previously disturbed area and is currently undeveloped with the exception of the existing SMUD transmission towers and the North City substation. Project implementation would include installing a soil cover and constructing drainage improvements (e.g., recontouring) across the approximately 13.5 acre project site. No new structures would be placed on the project site, and the site would be hydroseeded with native grasses upon completion of the project. Upon completion of construction, the site would largely resemble existing conditions, although the project site would slope in a generally west/east direction. Nonetheless, the project would not substantially change the view of the project or surrounding areas. Further, as noted above, views of and from the project site are limited, and any project-related

changes would not prevent long-distance views from or through the area. Therefore, impacts on scenic vistas would be ***less than significant***, and no mitigation is required.

**b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

**No Impact.** There are no designated state scenic highway segments within 3 miles of the project site (Caltrans 2020). Because there are no designated state scenic highways nearby, adjacent to, or visible from the project site, the project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. The project would have ***no impact***, and no mitigation is required.

**c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

**Less than Significant.** The project is located outside of the nearby urbanized area with limited public access. The project site may be visible from certain vantage points along the American River levee to the north; however, public access to the levee is limited to bicyclists and pedestrians. It should be noted that this section of levee is not part of the American River Parkway multiuse trail and is not used by a substantial number of people. The project involves installation of a soil cover and drainage improvements. Upon completion of construction, the area would no longer contain stockpiled soil and would appear as relatively smooth soil graded to allow water to flow the west. Overall, the project site would have a visual character similar to that of the existing conditions (e.g., undeveloped land) such that views would not be substantially degraded. Therefore, the project would have a ***less-than significant*** impact on the visual character or the quality of public views of the site and its surroundings, and no mitigation is required.

**d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less than Significant.** Construction activities would occur during daylight hours and would not require nighttime lighting. Construction equipment is unlikely to have reflective surfaces and would not be a substantial source of glare in the area. As no new structures would be located on the project site as part of the project, no lighting or sources of glare would result from project implementation. Therefore, the project would have a ***less-than-significant*** impact related to light and glare, and no mitigation is required.

## 3.2 Agriculture and Forestry Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>II. Agriculture and Forest Resources.</b>				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.2.1 Environmental Setting

The project area, including the project site and adjacent properties, does not contain active agricultural operations. The project site is designated as Other Land, while adjacent properties to the south and west are designated as Urban and Built-up by the Farmland Mapping and Monitoring Program (FMMP) (DOC 2018). "Other Land" is described by the FMMP as "land not included in any other mapping category." Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land, greater than 40 acres, surrounded on all sides by urban



development is also mapped as Other Land. The project site has historically consisted of vacant lands, has been used as a landfill or substation since 1940, and has not contained any agricultural operations during that time. No portions of the project site or adjacent parcels are held under Williamson Act contracts (Sacramento County 2020).

There are no areas either within or adjacent to the project site that have been zoned or otherwise designated as forest land or timberland (City of Sacramento 2019).

### 3.2.2 Discussion

**a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

**No Impact.** The project site and surrounding area are not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance by the FMMP. The project site is highly disturbed land that was historically used as a landfill and a substation and has not been used for agriculture purposes for at least the last 80 years. Because implementation of the project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, there would be **no impact**. No mitigation is required.

**b) Conflict with existing zoning for agricultural use or a Williamson Act contract?**

**No Impact.** The project site is zoned by Sacramento County as M-2-SPD-Heavy Industrial (City of Sacramento 2019). It is not zoned for agricultural use or subject to a Williamson Act contract. Thus, there would be **no impact**. No mitigation is required.

**c-d) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? Result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact.** The project site is zoned by Sacramento County as M-2-SPD-Heavy Industrial and is not zoned as forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)). Therefore, the project would not conflict with existing zoning, or cause rezoning or conversion of forest land, timberland, or timberland zoned Timberland Production. There would be **no impact**. No mitigation is required.



- e) **Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

**No Impact.** The project site is surrounded by industrial and residential land uses and consists of previously disturbed land that was historically used as a landfill and a substation. The project site and nearby area do not support Farmland, and there is no forest land on or nearby the project site. Project operations would consist mainly of site maintenance and monitoring activities and would not result in indirect or direct conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, there would be ***no impact***. No mitigation is required.

### 3.3 Air Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>III. Air Quality.</b>				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.3.1 Environmental Setting

The U.S. Environmental Protection Agency has established national ambient air quality standards (NAAQS) for six criteria air pollutants, which are known to be harmful to human health and the environment: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (which is categorized into particulate matter less than or equal to 10 microns in diameter [PM<sub>10</sub>] and particulate matter less than or equal to 2.5 microns in diameter [PM<sub>2.5</sub>]), and sulfur dioxide. The State of California has established the California ambient air quality standards (CAAQS) for these six pollutants, as well as for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. NAAQS and CAAQS were established to protect the public from adverse health impacts caused by exposure to air pollution. A brief description of the criteria air pollutants and their effects on health is provided in Table 3.3-1.

**Table 3.3-1 Criteria Air Pollutants**

Pollutant	Sources	Effects
Ozone	Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG), also sometimes referred to as volatile organic compounds by some regulating agencies, and nitrogen oxides (NO <sub>x</sub> ). The main sources of ROG and NO <sub>x</sub> , often referred to as ozone precursors, are products of combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.
Carbon monoxide	Carbon monoxide (CO) is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration.	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.
Particulate matter	Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect.	Scientific studies have suggested links between fine particulate matter and numerous health problems, including asthma, bronchitis, and acute and chronic respiratory symptoms, such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air.
Nitrogen dioxide	Nitrogen dioxide (NO <sub>2</sub> ) is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO <sub>2</sub> .	Aside from its contribution to ozone formation, NO <sub>2</sub> can increase the risk of acute and chronic respiratory disease and reduce visibility.
Sulfur dioxide	Sulfur dioxide (SO <sub>2</sub> ) is a combustion product of sulfur or sulfur-containing fuels, such as coal and diesel.	SO <sub>2</sub> is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.
Lead	Leaded gasoline, lead-based paint, smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was eliminated in the United States.	Lead has a range of adverse neurotoxic health effects.

Notes: CO = carbon monoxide; NO<sub>2</sub> = nitrogen dioxide; NO<sub>x</sub> = nitrogen oxides; ROG = reactive organic gases; SO<sub>2</sub> = sulfur dioxide.

Source: EPA 2018

The project site is located in Sacramento County within the Sacramento Valley Air Basin (SVAB). The SVAB is bounded on the north by the North East Plateau Air Basin, on the south by the San Joaquin Valley Air Basin, on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada, and on the west by the Coast Ranges. Sacramento County is currently designated as nonattainment for both the federal and state ozone standards, the federal PM<sub>2.5</sub> standard, and the state PM<sub>10</sub> standard. The region is designated as in attainment or being unclassifiable for all other NAAQS and CAAQS (CARB 2019).

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the local agency responsible for air quality planning and development of air quality plans in the project area. SMAQMD maintains an attainment plan for achieving the state and federal ozone standards that was updated and approved by the SMAQMD Board and the California Air Resources Board (CARB) in 2017. The air quality plan establishes strategies to achieve compliance with the NAAQS and CAAQS ozone standards in all areas within SMAQMD's jurisdiction. There are currently no plans available for achieving the federal PM<sub>2.5</sub> or state PM<sub>10</sub> standards. SMAQMD develops regulations and emission reduction programs to control emissions of criteria air pollutants, ozone precursors (oxides of nitrogen [NO<sub>x</sub>] and reactive organic gases [ROG]), toxic air contaminants (TACs), and odors within its jurisdiction.

SMAQMD published the *Guide to Air Quality Assessment in Sacramento County*, which was last updated in April 2020 and provides air quality guidance for the preparation of CEQA documents. This guide establishes SMAQMD-recommended thresholds of significance for criteria air pollutants for the evaluation of air quality impacts in Sacramento County. CEQA-related air quality thresholds of significance are tied to achieving or maintaining the attainment designation with the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants established to protect the public from adverse health impacts. For the purposes of this project, the following thresholds of significance, which are based on the SMAQMD-recommended thresholds, are used to determine whether project-generated emissions would produce a significant localized and/or regional air quality impact such that human health would be adversely affected.

Air quality impacts would be significant if the project would:

- result in construction-generated emissions of NO<sub>x</sub> exceeding 85 pounds per day (lbs/day), PM<sub>10</sub> exceeding 80 lbs/day or 14.6 tons per year (tpy), or PM<sub>2.5</sub> exceeding 82 lbs/day or 15 tpy;
- result in operational emissions of ROG exceeding 65 lbs/day, NO<sub>x</sub> exceeding 65 lbs/day, PM<sub>10</sub> exceeding 80 lbs/day or 14.6 tpy, or PM<sub>2.5</sub> exceeding 82 lbs/day or 15 tpy;

- result in carbon monoxide emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million (ppm) or the 8-hour CAAQS of 9 ppm during construction and operations;
- expose any off-site sensitive receptor to a substantial incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; or
- create objectional odors affecting a substantial number of people.

In addition to these thresholds, all SMAQMD-recommended BMPs (and use of Best Available Control Technology (BACT)) shall be implemented to minimize emission of PM<sub>10</sub> and PM<sub>2.5</sub>. Without the application of BMPs and BACT, the threshold for PM<sub>10</sub> and PM<sub>2.5</sub> during construction and operations is zero pounds per day.

### 3.3.2 Discussion

#### a) Conflict with or obstruct implementation of the applicable air quality plan?

**Less than Significant.** The project involves the installation of a soil cover and construction of drainage improvements within the project site. Upon completion of the soil cover and drainage improvement and implementation of the post-remediation site monitoring and maintenance plan, vehicle trips would be minimal and infrequent. Thus, there would be no long-term increase in mobile-source emissions. Therefore, the project's long-term operational emissions of criteria air pollutants and precursors would be below the SMAQMD-recommended thresholds, would not contribute to the exceedance of the NAAQS or CAAQS in the County, and would be consistent with all applicable air quality plans.

Construction activities would occur over a period of 6–9 months, both starting and ending in 2022. Project construction would result in temporary emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with construction activities (e.g., site preparation, grading), operation of off-road equipment, material delivery (up to 50 truck trips could occur per day to haul fill material to the site), and worker commute trips. Fugitive dust emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would be primarily associated with site preparation and earthwork and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and unpaved vehicle miles traveled. Exhaust from off-road equipment can also contain PM<sub>10</sub> and PM<sub>2.5</sub>. Emissions of ozone precursors, ROG and NO<sub>x</sub>, are associated primarily with construction equipment and on-road mobile exhaust. Construction activities associated with the project would likely require the use of equipment such as excavators, dozers, haul trucks (up to 50 truck trips could occur per day to haul fill material to the site), water trucks, loaders, and hammer compactors, as well as other diesel-fueled equipment, as necessary. Construction would be generally separated into five components: site preparation, concrete demolition, rough grading, soil cover placement, and drainage improvements.

Construction-generated emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program. Modeling was based on project-specific information, where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. As discussed in Chapter 2, soil stabilization and dust suppression activities would be used as part of the WPCP and would satisfy the requirements of Fugitive Dust Rule 403, set forth by SMAQMD, which would minimize emissions of PM<sub>10</sub> and PM<sub>2.5</sub>. These measures would be consistent with the best management practices and best available control technology practices required by SMAQMD. These activities are included in the air quality modeling. Also, as noted in Chapter 2, the project would adhere to strict daily construction hours (7 a.m. to 6 p.m. on Monday through Saturday and 9 a.m. to 6 p.m. on Sunday). The construction analysis assumes that all construction equipment would be used for 8 hours each day. Worst-case construction emissions were estimated based on anticipated construction activities that would occur simultaneously (e.g., concrete demolition, pond excavation, cover soil placement, material hauling) over a 4½-month period. Table 3.3-2 summarizes the modeled maximum daily emissions from construction activities for all pollutants. For assumptions and modeling inputs, refer to Appendix A.

**Table 3.3-2 Summary of Emissions Generated during Project Construction**

	Maximum Daily Emissions (lbs/day)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> (exhaust/fugitive)	PM <sub>2.5</sub> (exhaust/fugitive)
Construction-Related Emissions	3.4	41.5	1.6/48.3	1.5/7.5
SMAQMD threshold of significance <sup>a</sup>	No Threshold	85	80	82
Exceeds threshold?	No	No	No	No

Notes: ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; lbs/day = pounds per day; SMAQMD = Sacramento Metropolitan Air Quality Management District.

<sup>a</sup>. Represents SMAQMD threshold of significance with compliance with SMAQMD Fugitive Dust Rule 403 using dust suppression activities and soil stabilization.

See Appendix A for details.

Source: Modeled by Ascent Environmental in 2020

As shown in Table 3.3-2, project construction would not generate emissions in excess of the SMAQMD thresholds for ROG, NO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub>. Therefore, this impact would be **less than significant**, and no mitigation is required.

- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?**

**Less than Significant.** Sacramento County is currently in nonattainment for the federal and state ozone, state PM<sub>10</sub>, and federal PM<sub>2.5</sub> standards. As discussed above,

construction of the project would result in temporary emissions of criteria air pollutants, but project operational emissions would be negligible. Ozone impacts are the result of cumulative emissions from numerous sources that can be inside or outside the region. Ozone is formed in chemical reactions involving NO<sub>x</sub>, ROG, and sunlight. Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) has the potential to cause cumulative local impacts. For example, particulate matter could cause local issues if several unrelated grading or earth-moving activities occurred simultaneously at nearby sites, especially if conditions were dry and/or involved high winds. Such a scenario is not expected because no future projects have been planned or permitted adjacent to the project site that would be under construction at the same time as the project. Additionally, the soil stabilization and dust suppression activities that would be used as part of the WPCP would satisfy the requirements of Fugitive Dust Rule 403 and, thus, would minimize emissions of PM<sub>10</sub> and PM<sub>2.5</sub>. As discussed previously, project-related emissions of NO<sub>x</sub>, ROG, PM<sub>10</sub>, and PM<sub>2.5</sub> would not exceed SMAQMD thresholds during construction activities. Because construction emissions would be temporary and would not exceed SMAQMD thresholds, dust suppression measures would be taken, and minimal long-term emissions would be generated during project operations, project-generated emissions would not be cumulatively considerable, and this impact would be ***less than significant***, and no mitigation is required.

**c) Expose sensitive receptors to substantial pollutant concentrations?**

**Less than Significant.** Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children and the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and the potential for these individuals to experience increased and prolonged exposure to pollutants. The nearest sensitive receptors are the single-family residences west of the project site, the closest residence being approximately 780 feet from the nearest project site boundary. Other residential receptors located more distant from the project site include single-family residences in the New Era Park neighborhood, located approximately 930 feet south of the nearest project site boundary.

In terms of existing hazardous gases on the project site associated with historical landfilling, estimates of current and future landfill gas generation from the former NCLF were modeled in 2020. This evaluation indicated that the wastes in place have largely undergone the decomposition process that would generate landfill gas, and only residual volumes of landfill gas are currently being generated. The existing decomposition rate is very low, slowly declining, and is expected to continue to decline over time, which is normal at old landfill sites. While the modeling concluded that landfill gas generation and migration potential is considered to be very low, it is possible that, during final placement of the cover system, landfill gas migration may shift based on the adjustments to the surface contours. However, as part of the project, SMUD would continue to monitor landfill gas migration using the existing landfill gas monitoring system, including during the post-remediation period to ensure methane levels at the property



boundary are in compliance with state requirements for subsurface combustible gas migration control (Miller and Minshew, pers. comm., 2020).

During construction, particulate matter from diesel construction equipment exhaust is the primary TAC of concern. As shown above in Table 3.3-2, construction-related activities would result in emissions of 1.6 lbs/day of PM<sub>10</sub> and 1.5 lbs/day of PM<sub>2.5</sub>, which would not exceed the SMAQMD thresholds. Additionally, the closest sensitive receptors are at a distance to which PM<sub>10</sub> and PM<sub>2.5</sub> would dissipate before reaching them (780 feet away or farther). Furthermore, construction would occur temporarily and intermittently over a limited period of 6–9 months, a duration substantially shorter than the exposure period used for typical health risk calculations (i.e., 30 years). The project would also not generate substantial emissions during project operation as additional on-site activities would not occur following construction. Therefore, the project's short-term construction activities and long-term operation would not expose sensitive receptors to health risks caused by substantial or prolonged TAC concentrations. This impact would be **less than significant**, and no mitigation is required.

**d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

**Less than Significant.** The project site is located on properties that were historically used for landfill operations and/or disposal sites from approximately 1940 to 1949, 1980, and 1993. Because of the level of regulations associated with solid waste disposal at the time it was in use, the NCLF does not have a final cover or liner system. The project would include installing a 2-foot-thick soil cover, which would trap odorous emissions under the soil and, thus, reduce odors from existing conditions. Activities associated with project operation would be limited and would not generate any new odors.

Minor odors from the use of heavy equipment during construction would be temporary and intermittent and would dissipate rapidly from the source with increases in distance. As discussed above, the nearest residential receptors are approximately 780 feet west of the nearest project site boundary, which is sufficiently distant from the project site to allow for substantial odor dissipation.

For the reasons listed above, implementation of the project would not result in exposure of a substantial number of people to objectionable odors during construction or operation. Thus, this impact would be **less than significant**, and no mitigation is required.



### 3.4 Biological Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>IV. Biological Resources.</b>				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.4.1 Environmental Setting

This section describes biological resources in the project site and evaluates potential impacts on such resources as a result of project implementation. To determine the biological resources that may be subject to project impacts, Ascent biologists reviewed the following data sources:

- California Natural Diversity Database (CNDDB) (CNDDB 2020);
- California Native Plant Society Online Inventory of Rare and Endangered Plants (CNPS 2020);

- U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation System (USFWS 2020a); and
- USFWS National Wetlands Inventory (USFWS 2020b).

In addition, an Ascent biologist conducted a reconnaissance survey of the project site on September 17, 2020.

### *Vegetation and Habitat Types*

The project site and the surrounding area has been historically disturbed due to levee construction and urban development. The majority of the project site supports annual grassland and had been maintained/mowed for fire control purposes prior to the September 17, 2020, site visit. Plants observed within the project site include grasses and herbs that were hydroseeded for erosion control, such as clover (*Trifolium* sp.), rabbit's foot grass (*Polypogon monspeliensis*), and Italian ryegrass (*Festuca perennis*). There is a small cluster of invasive seedlings consisting of tree-of-heaven (*Ailanthus altissima*), black locust (*Robinia* sp.), and nonnative catalpa (*Catalpa* sp.) seedlings in the north central portion of the project site. Other plants observed include wild oat (*Avena* sp.), switchgrass (*Panicum virgatum*), Bermuda grass (*Cynodon dactylon*), Italian thistle (*Carduus pycnocephalus*), blessed milkthistle (*Silybum marianum*), yellow starthistle (*Centaurea solstitialis*), hemp dogbane (*Apocynum cannabinum*), sweet pea (*Lathyrus latifolius*), Russian thistle (*Salsola tragus*), perennial pepperweed (*Lepidium latifolium*), telegraph weed (*Heterotheca grandiflora*), Himalayan blackberry (*Rubus armeniacus*), and blue elderberry (*Sambucus nigra*).

### *Elderberry Shrubs*

A cluster of five blue elderberry shrubs was identified within 100 feet of the project site. The nearest of the elderberry shrubs within the cluster is 4 and 13 feet from the eastern property line of the project site and approximately 50 and 59 feet from the edge of the proposed infiltration pond. The identified shrubs are shown in Figure 3.4-1. Elderberry shrubs are obligate host plants for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), listed as a threatened species under the federal Endangered Species Act (ESA). Shrubs with live stems 1 inch or greater in diameter are considered suitable habitat for the valley elderberry longhorn beetle in California's Central Valley. Sustainable populations of valley elderberry longhorn beetle also require habitat connectivity because individual beetles normally require shrub canopy spacing of less than 100 feet for dispersal. Therefore, optimal habitat for valley elderberry longhorn beetle is considered riparian woodlands with large, mostly continuous populations of mature elderberry shrubs. USFWS has designated an area of critical habitat for valley elderberry longhorn beetle approximately 0.48 mile from the project site, in woodland habitat north of the American River.



Source: Adapted by Ascent Environmental in 2020

**Figure 3.4-1 Elderberry Shrubs in the Vicinity of the Project Site**

Review of historical topographic maps and historical aerial imagery revealed that the project area has not been part of the riparian area of the American River for at least 120 years. The elderberry shrubs appear to have sprouted during the summer 2011. A fire in 2014 and subsequent vegetation removal thinned out the area since then.

All five elderberry shrubs are within 100 feet of proposed construction activities and have stems that are between 1 inch and 2 inches in diameter at ground level. None of the shrubs are growing in riparian habitat, and no exit holes for valley elderberry longhorn beetle were observed.

### *Special-Status Species*

Special-status species are plants and animals that are legally protected under the ESA, California Endangered Species Act (CESA), California Fish and Game Code, or local plans, policies, and regulations or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. For this IS/MND, special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the ESA;
- species designated as candidates for listing as threatened or endangered under the ESA;
- species listed, proposed for listing, or candidates for listing as threatened or endangered under CESA;
- species listed as fully protected under the California Fish and Game Code;
- animals identified by CDFW as species of special concern;
- plants considered by CDFW to be “rare, threatened or endangered in California” and assigned a California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California but more common elsewhere; and 2B, considered rare or endangered in California but more common elsewhere;
- species considered a locally significant species—that is, species that are not rare from a statewide perspective but are rare or uncommon in a local context, such as in a county or region (CEQA Section 15125[c]), or that are so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines Appendix G); and
- taxa (i.e., taxonomic categories or groups) that meet the criteria for listing even if they are not currently included on any list, as described in CCR Section 15380 of the State CEQA Guidelines.



Based on a review of existing data sources (CNDDDB 2020; CNPS 2020; USFWS 2020a), 28 special-status wildlife species and 17 special-status plant species have potential to occur in the project area (Appendix B). Species ranges and habitat requirements were further evaluated to determine potential for occurrence on the project site. Because it is highly disturbed, the project site does not contain suitable habitat for any of the special-status plant species. Therefore, no special-status plant species are expected to occur on the project site. Refer to Appendix B for additional detail. Out of the 28 special-status wildlife species, three species are considered likely to occur in or immediately adjacent to the project site: valley elderberry longhorn beetle, Swainson's hawk (*Buteo swainsoni*), and white-tailed kite (*Elanus leucurus*).

### 3.4.2 Discussion

- a) **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**Less than Significant with Mitigation Incorporated.** Ground disturbance associated with the project would occur within previously disturbed land, and as explained above, no special-status plants are expected to occur on the site. Therefore, the project would have no impact on special-status plant species. The project has potential to adversely affect valley elderberry longhorn beetle, Swainson's hawk, white-tailed kite, and other nesting birds. Potential impacts on these species are addressed below.

#### Valley Elderberry Longhorn Beetle

The project has the potential to result in incidental take of valley elderberry longhorn beetle without avoidance measures through disturbance of elderberry shrubs. Valley elderberry longhorn beetle habitat may be affected by ground disturbance within 100 feet of elderberry shrubs. A cluster of five elderberry shrubs was found between 4 and 13 feet from the eastern project boundary and between 50 and 57 feet from the proposed infiltration pond. The five elderberry shrubs are located within previously disturbed ruderal habitat that burned in 2014. Remnant stumps of larger elderberry shrubs were also observed in proximity to these five shrubs.

Some of these stumps have holes similar to exit holes, but a determination as to whether the holes were created before or after removal could not be reached. All five elderberry shrubs observed have one stem between 1 and 2 inches in diameter at ground level, and no exit holes were observed on any of the stems. All five elderberry shrubs are behind a chain-link fence. The USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (*Desmocerus californicus dimorphus*) (Framework) (USFWS 2017) details a protocol for determining occupancy of valley elderberry longhorn beetle. Based on this protocol, an evaluation of valley elderberry longhorn beetle occurrences and habitat within 2,652 feet (800 meters) was conducted.

Although the project site is not within continuous riparian vegetation cover, riparian vegetation is approximately 140 feet north of the elderberry cluster along the American River. A large homeless encampment is currently present in this riparian habitat. The next nearest elderberry shrub is 525 feet (160 meters) to the east within private property. The nearest valley elderberry longhorn beetle known occurrence (CNDDDB Occ. No. 281) is approximately 890 feet (277 meters) to the northwest. Occurrence number 281 dates to 2009 and is from the south bank of the American River within riparian habitat. The other two occurrences within 2,652 feet date back to 1984 and are located within the north bank of the American River (CNDDDB Occ. Nos. 6 and 9) also within riparian habitat. CNDDDB occurrence number 6 is part of USFWS-designated critical habitat for valley elderberry longhorn beetle. Based on the elderberry survey and analysis following the Framework, we cannot dismiss the potential for the elderberry shrubs to be occupied based on presence of old exit holes on elderberry stumps, proximity of riparian habitat, and known recent occurrences of valley elderberry longhorn beetles within 2,526 feet of the project site.

Although the project would not result in the removal of these five elderberry shrubs, the shrubs are located within 20 feet of the project footprint and the closest soil disturbance to the shrubs is approximately 50 feet; thus, there is potential for direct and indirect impacts on elderberry shrubs, such as excessive dust created by construction activities depositing on elderberry shrub leaves and grading in proximity to the shrubs causing damage to the roots. These activities could adversely affect the health and vigor of the shrubs, ultimately resulting in their death and the loss of valley elderberry longhorn beetles that inhabit the shrubs. Direct or indirect incidental take of habitat for a federally listed species is considered a potentially significant impact. With implementation of the mitigation measures, adverse impacts to VELB are not expected and take is not anticipated.

#### **Mitigation Measure 3.4-1: Avoid Elderberry Shrubs**

*To maintain the health and vigor of elderberry shrubs, SMUD shall avoid the elderberry shrubs and implement the following incidental take avoidance measure:*

- 1. No grading would occur within 20 feet of the dripline of the elderberry shrubs.*

*SMUD shall implement the following impact avoidance measures for activities conducted between 20 and 100 feet of elderberry shrubs to avoid incidental take during construction:*

- 1. The presence of elderberry shrubs in the construction area and vicinity will be documented on work orders, and the SMUD project manager will be informed.*
- 2. A qualified biologist shall provide training for all contractors, work crews, and any on-site personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.*

3. *A 20-foot exclusion boundary around elderberry shrubs will be clearly flagged or fenced in the field and marked on construction plans, and signs will be posted with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable and must be maintained for the duration of construction.*
- 4 *The excluded zone will be designated an Environmentally Sensitive Area and a biological monitor will be required to supervise rough grading of the infiltration pond. The monitor will have the authority to stop work if personnel are out of compliance with the valley elderberry longhorn beetle avoidance measures or if there is a risk that incidental take may occur.*
- 5 *Watering of the site for dust suppression will help reduce the amount of dust that could affect the health and vigor of the elderberry shrubs.*

#### Significance after Mitigation

Implementation of Mitigation Measure 3.4-1 would minimize impacts on valley elderberry longhorn beetle by avoiding the elderberry shrubs, documenting the location of the shrubs on work orders, implementing worker environmental awareness training, fencing or flagging an avoidance area at least 20 feet from the dripline of the elderberry shrubs, watering of the site would reduce dust that could affect the health and vigor of the shrubs, and conducting biological monitoring during rough grading activities of the infiltration pond. With implementation of Mitigation Measure 3.4-1, the potential impact on valley elderberry longhorn beetle would be reduced to a ***less-than-significant*** level.

#### Swainson's Hawk, White-Tailed Kite, and Other Nesting Birds

The project involves landfill closure activities at the North City property, which would include demolition of the substation concrete slab and piers, regrading of the site, placement of soil cover, and drainage improvements. The closure activities proposed for Lot 31 consist of regrading the site, constructing an infiltration pond, making drainage improvements, and placing soil cover over areas that contain waste. Although construction activities would result in the temporary disturbance of foraging habitat, after the soil cover placement is complete, the project site would continue to provide and will slightly expand the available foraging habitat for Swainson's hawk and other raptors.

The demolition of the North City substation concrete slab and piers within the NCLF property would result in 3.2 acres of developed habitat reverting to grassland habitat after remediation is completed. Although the temporary disturbance to foraging habitat would occur, there is adjacent foraging habitat in parcels next to the site and along the north shore of the American River; thus, no mitigation for the temporary disturbance to foraging habitat is required.

The project site does not contain trees that could provide suitable nesting habitat for Swainson's hawk or white-tailed kite; however, trees within the American River riparian area and the New Era Park, Boulevard Park, and Marshall School and other nearby neighborhoods provide habitat suitable for these and other raptor species. White-tailed kites generally nest within 0.5 mile of foraging habitat and are rarely found away from their preferred foraging habitats, which include alfalfa and other hay crops, irrigated pastures, sugar beets, and tomatoes (Erichsen et al. 1994; Dunk 1995; CDFW 2005). Swainson's hawk nest sites are generally located within approximately two miles of suitable foraging habitat, which consists of alfalfa, disced fields, fallow fields, dryland pasture, beets, tomatoes, irrigated pasture, grains, other row crops, and uncultivated grasslands (Estep 1989, 2009). Although Swainson's hawks may forage 10 miles or more from their nest sites, foraging habitat within 1 mile of the nest is of primary importance, and reproductive success decreases for Swainson's hawks as distance from foraging habitat increases (Estep 1989; England et al. 1995, cited in Estep 2009; England et al. 1997).

There are 34 known Swainson's hawk nests within 5 miles of the project site. Of these 34 nests, four have been active within the last 5 years, and the nearest of these active nests is within the Boulevard Park neighborhood 0.59 mile south of the project site. A pair of white-tailed kites is suspected to nest in the New Era Park and Boulevard Park neighborhoods; the nearest CNDDDB record is across the American River, 818 feet north of the project site. A white-tailed kite pair was observed foraging in the annual grassland east of the project site during the September 17, 2020, site visit. Although the project site does not support trees suitable for nesting raptors, the project site is adjacent to potentially suitable nesting habitat for raptors and native migratory bird species.

Native migratory bird species and their nests are afforded protection under state law even if they do not have a special-status species designation. Destruction of any bird nest or take of the nest or eggs of any bird is a violation of Section 3503 of the California Fish and Game Code. Project construction could include removal of one of the landscape trees and therefore has the potential to result in direct removal of bird nests. Additionally, construction activities occurring during the nesting season (between approximately February 1 and August 31), such as demolition, ground disturbance, and presence of construction equipment and crews, could generate noise and visual stimuli that may result in disturbance to active bird nests, if present, potentially resulting in nest abandonment. Nest abandonment may result in death of chicks or loss of eggs if the adult bird does not return to the nest. Although the loss of nests of common migratory bird or raptor species (e.g., mourning dove, house sparrow, and Cooper's hawk (*Accipiter cooperii*)) would not be considered a significant impact because it would not result in a substantial effect on their populations locally or regionally, cause any population to drop below self-sustaining levels, or result in a trend toward these species being listed as threatened or endangered, destruction of any migratory bird nest is a violation of the Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code.



As noted above, there are no known occurrences of either Swainson's Hawk or white-tailed kite in the immediate vicinity of the project site. However, because several mature trees are present in the surrounding area and because occurrences of these two species nesting within urban areas have been documented, there is a potential that either species could nest near or adjacent to the project site. If so, there is a potential that construction activities at the project site could disturb active nests, resulting in nest abandonment, which would be considered a significant impact.

In addition to providing potential nesting sites for Swainson's hawk and white-tailed kite, mature trees in the general project area could support nests of common raptors, including Cooper's hawk, red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and great horned owl (*Bubo virginianus*). In addition to common raptors, trees adjacent to the project site may also support other common nesting birds. The nests of common raptors and other common birds are protected under Sections 3503 and 3503.5 of California Fish and Game Code. As a result, this impact would be potentially significant without implementation of mitigation.

**Mitigation Measure 3.4-2: Avoid or Minimize Effects on Nesting Swainson's Hawk, White-Tailed Kite, and Other Nesting Birds**

*The following measures shall be implemented to avoid or minimize loss of active Swainson's hawk, white-tailed kite, and other raptor nests:*

- *If construction (including vegetation removal) would occur during the nesting season (between February 1 and August 31), a SMUD project biologist/biological monitor shall conduct pre-construction nesting bird surveys to determine whether birds are nesting in the work area or within 0.25 mile for Swainson's hawk and 500 feet for all other nesting birds of the project site.*
- *The pre-construction nesting bird surveys will identify on-site bird species and any nest-building behavior. If no nesting Swainson's hawks are found on or within 0.25 mile of the project site or if no nesting birds are found on or within 500 feet of the project site during the pre-construction clearance surveys, construction activities may proceed as scheduled.*
- *If pre-nesting behavior is observed but an active nest of common nesting bird has not yet been established (e.g., courtship displays but no eggs in a constructed nest), a nesting bird deterrence and removal program will be implemented. Such deterrence methods include removal of the previous year's nesting materials and removal of partially completed nests in progress. After a nest is situated and identified with eggs or young, it is considered to be "active," and the nest cannot be removed until the young have fledged.*

- *If active Swainson's hawk nests are found within the nest survey area, the construction contractor shall avoid impacts on such nests by establishing a no-disturbance buffer around the nest. Monitoring of the nest by a qualified biologist during construction activities shall be required if the activity has the potential to adversely affect the nest. Based on guidance for determining a project's potential for affecting Swainson's hawks (Swainson's Hawk Technical Advisory Committee 2000), projects in urban areas have a low risk of adversely affecting nests greater than 600 feet from project activities. Therefore, 600 feet is anticipated to be the adequate buffer size for protecting nesting Swainson's hawks from disturbances associated with the project. However, the qualified biologist shall consult with CDFW to confirm the adequacy of the no-disturbance buffer and/or whether the buffer may be reduced based on the biologist's professional judgment.*
- *If an active white-tailed kite nest or nest of a common bird species is found on or within 500 feet of the project site during construction, a "no-construction" buffer zone will be established around the active nest (usually a minimum radius of 50 feet for passerine birds and 500 feet for raptors) to minimize the potential for disturbance of the nesting activity. The project biologist/biological monitor will determine and flag the appropriate buffer size required, based on the species, specific activities being conducted, tolerances of the species, and the nest location. Project activities will resume in the buffer area when the project biologist/biological monitor has determined that the nest(s) is (are) no longer active or the biologist/biological monitor has determined that with implementation of an appropriate buffer, work activities would not disturb the bird's nesting behavior.*
- *If special-status bird species are found nesting on or within 500 feet of the project site, the project biologist/biological monitor shall notify SMUD's project manager to notify CDFW or USFWS, as appropriate, within 24 hours of the first nesting observation.*

#### Significance after Mitigation

Implementation of Mitigation Measure 3.4-2 would ensure that the project would not result in disturbance to or loss of nesting birds by either undertaking activities outside of nesting bird season or implementing buffers around active nests during the nesting bird season. Therefore, the impact to nesting Swainson's hawk, white-tailed kite, and other nesting birds would be reduced to a **less-than-significant** level.

- b) **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**No Impact.** The project site does not contain riparian habitat or sensitive natural communities. All project activities would take place in previously disturbed areas. Therefore, there would be **no impact** on riparian habitat or other sensitive natural communities, and no mitigation is required.

- c) **Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

**No Impact.** The project area does not contain any wetland, stream, or other aquatic habitat that could be considered jurisdictional waters of the United States or waters of the state. The proposed drainage ditch would direct on-site runoff into the proposed shallow infiltration pond, and no runoff would occur. Therefore, there would be **no impact** on state-protected or federally protected wetlands or other waters of the United States or waters of the state, and no mitigation is required.

- d) **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

**No impact.** A search of CDFW's California Essential Habitat Connectivity and Missing Linkages in California Landscape data did not identify any designated essential habitat connectivity areas or missing linkages on the project site or in the immediate project vicinity. Additionally, the project area does not contain any known wildlife nursery sites. The project site is located completely within previously disturbed land, and all project activities, including staging, would occur within the NCLF property. Therefore, there would be **no impact**, and no mitigation is required.

- e) **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**Less Than Significant.** All of the non-native (i.e., catalpa) or invasive trees (i.e., tree-of-heaven, black locust) that would be removed from the project site are less than 12 inches in diameter at standard height (DSH), and most are less than 2 inches in DSH. Therefore, they do not fall under the definition of private trees that would require a permit from the City of Sacramento. The removal of non-native and invasive trees from the project site is considered a **less-than-significant** impact, and no mitigation is required.

- f) **Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

**No Impact.** The project site is not located within the plan area of an adopted habitat conservation plan, natural community conservation plan or other applicable and approved habitat conservation plan. As a result, it would not conflict with the provisions of any such plan. Therefore, the project would result in ***no impact***, and no mitigation is required.

### 3.5 Cultural Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
<b>V. Cultural Resources.</b>				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 3.5.1 Environmental Setting

A cultural resources report was prepared by ICF for the project; see Appendix D. In October 2020, a California Historical Resources Information System records search was conducted by the North Central Information Center on the campus of California State University, Sacramento to determine whether prehistoric archaeological, historic-period archaeological, or built-environment historical resources have been previously recorded within the project site, the extent to which the project site has been previously surveyed, and the number and type of cultural resources within a 0.25-mile radius of the project site. The results indicated that there are no previously recorded resources or surveys within the project site. No previous studies have been conducted within the project site (ICF 2020).

There are two known built-environment resources located outside of the project site, but within the 0.25 mile radius. These resources consist of a segment of the Union Pacific Railroad located to the west of the project site and the South Bank American River Levee located north of the project site. One previous cultural resource study has been conducted within 0.25 miles of the project site (ICF 2020).

A pedestrian survey was conducted on October 15, 2020 and revealed one historic-period archaeological site. The site consists of a refuse dump dating between 1940-1950; previous analysis indicates that intact deposits of the site are located between 3 and 18 feet below ground surface with construction debris overlying the site. The archaeological site was evaluated for potential California Register of Historical Resources (CRHR) eligibility and recommended not eligible due to a lack of data potential and integrity of artifacts due to burn operations at the dump. Previous analysis also indicates that refuse visible on the surface is in a mixed and churned historic-period refuse with modern debris, consistent with observations during the current pedestrian survey (ICF 2020).

### 3.5.2 Discussion

**a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?**

**No Impact.** The records search and the pedestrian survey revealed no built-environment historical resources within the project site. Therefore, there would be **no impact** to historical resources, and no mitigation is required.

**b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?**

**Less than Significant with Mitigation Incorporated.** A historic-period archaeological site was discovered during the pedestrian survey. More specifically, sections of the project site within SMUD's NCLF property contain historic-period and modern refuse fill (up to 31 feet). This resource was evaluated and recommended not eligible for listing on the CRHR (ICF 2020). Therefore, the site is not considered a resource under CEQA.

The City of Sacramento's Lot 31 contains some construction and demolition debris beneath the surface from historic landfill operation. In addition, areas within Lot 31 have further been substantially altered through the installation of a large stormwater retention basin at the eastern extent of the project site. Given these factors, the project site has low sensitivity for buried prehistoric archaeological resources within SMUD's NCLF property and low-to-moderate sensitivity for buried prehistoric archaeological resources within the City's Lot 31. While Lot 31 was on the northern edge of historical disposal activities and was altered by installation of a stormwater retention basin, there is a low-to-moderate potential for pockets of buried historic archaeological resources elsewhere within Lot 31. This impact would be potentially significant.

**Mitigation Measure 3.5-1: Worker awareness and response for discovery of previously unknown cultural resources**

*In the event that a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or 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. If the find is a prehistoric archeological site, the appropriate Native American group shall be notified. 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 an 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 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.*

*Historic-period pieces (e.g., bottles, bricks, etc.), if encountered, are only considered potentially significant and requiring evaluation pursuant to this measure within the Lot 31 portion of the project site.*

Implementation of Mitigation Measure 3.5-1 would reduce potential impacts to archaeological resources discovered during project construction activities to a **less-than-significant** level by requiring preservation options and proper curation if significant artifacts are recovered.

**c) Disturb any human remains, including those interred outside of formal cemeteries?**

**Less than significant with mitigation incorporated.** There are no known past cemeteries or burials on the project site or immediate area. However, because earthmoving activities associated with project construction would occur, there is potential to encounter buried human remains or unknown cemeteries in areas with little or no previous disturbance. This impact would be potentially significant.

**Mitigation Measure 3.5-2: Halt ground disturbance upon discovery of human remains**

*Consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act, if suspected human remains are found during construction, all work shall be halted in the immediate area and place an exclusion zone (lath and flagging) around the burial. The Principal Investigator will notify the City of Sacramento Police Department, who will in turn notify the county coroner to determine the nature of the remains. The coroner shall examine all discoveries of suspected human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she shall contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC shall then assign a most likely descendant to serve as the main point of Native American contact and consultation. Following the coroner's findings, the MLD, in consultation with the City, shall determine the ultimate treatment and disposition of the remains.*

Implementation of Mitigation Measure 3.5-2 would reduce potential impacts related to human remains to a **less-than-significant** level by requiring work to stop if suspected human remains are found, communication with the county coroner, and the proper

identification and treatment of the remains consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act.

### 3.6 Energy

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VI. Energy.</b>				
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.6.1 Environmental Setting

California relies on a regional power system composed of a diverse mix of natural gas, petroleum, renewable, hydroelectric, and nuclear generation resources:

- **Petroleum:** Petroleum products (gasoline, diesel, jet fuel) are consumed almost exclusively by the transportation sector, which is responsible for almost 90 percent of the petroleum consumed in the state (EIA 2020). In 2015, a total of 15.1 billion gallons of gasoline were sold in California (CEC 2020). To meet CARB regulations, all gasoline and diesel fuel sold in California for motor vehicles is refined to be a specific blend of motor gasoline called California Reformulated Gasoline (EIA 2020).
- **Natural gas:** While the majority of natural gas consumers in California are residential and small commercial users, these users consume only about 35 percent of natural gas in the state. Larger volume gas consumers, such as utilities for electricity generation and industrial consumers, although fewer in number, consume the remaining 65 percent of natural gas used in the state (CPUC 2020).
- **Electricity and renewables:** In 2002, Senate Bill 1078 established a renewables portfolio standard (RPS) program. The program is jointly implemented by the California Public Utilities Commission and the California Energy Commission and requires all load-serving entities to procure 60 percent of their total electricity retail sales from renewable energy sources by 2030. Most retail sellers met or exceeded their 29-percent interim RPS target in 2018, including all large investor-owned utilities, which provide electricity to 72 percent of all utility customers (CPUC 2019, EIA 2019).
- **Alternative fuels:** Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many alternative transportation fuels (e.g.,



biodiesel, hydrogen, electricity). Use of alternative fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, Assembly Bill 32 Scoping Plan).

### 3.6.2 Discussion

**a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

**Less than Significant.** Energy would be consumed during project construction to operate and maintain construction equipment and transport construction materials. It also would be consumed for worker commutes. Levels of construction-related fuel consumption were calculated using equipment assumptions consistent with CalEEMod Version 2016.3.2 and fuel consumption factors derived from EMFAC 2011. See Appendix A for detailed calculations. An estimated 1,031 gallons of gasoline and 27,856 gallons of diesel would be consumed during project construction, accounting for both on-site equipment use and off-site vehicle travel for worker commutes and haul trips. This one-time energy expenditure required to construct the project would be nonrecoverable. However, energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy.

Monitoring and maintenance trips would be essential during implementation of the monitoring and maintenance plan for ensuring that the closed landfills remains safe for surrounding land uses, such as through the inspection of proper site drainage, monitoring of the soil cover, and monitoring of groundwater quality, and these activities would be consistent in terms of type, number, and purpose with existing activities associated with the project site. Therefore, the project would not result in an inefficient, wasteful, or unnecessary consumption of energy resources. This impact would be **less than significant**. No mitigation is required.

**b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency**

**No Impact.** As discussed above, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy resources. Furthermore, the project would not involve the construction or installation of any energy-consuming buildings, structures, or equipment. Thus, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The project would have **no impact**, and no mitigation is required.

### 3.7 Geology and Soils

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VII. Geology and Soils.</b>				
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.7.1 Environmental Setting

##### Geology

The project site is within California's Central Valley and situated on Quaternary-age fluvial and alluvial deposits. The Sacramento Valley forms the northern half of the Great Valley, which fills a northwest-trending structural depression bounded on the west by the Great Valley Fault Zone and the southern Coast Ranges and bounded on the east by the Sierra Nevada and the Foothills Fault Zone. Most of the surface of the Great Valley is covered with alluvium of Holocene and Pleistocene age, composed primarily of

sediments from the Sierra Nevada and the Coast Ranges that were carried by rivers and deposited on the valley floor.

The topography of the site is overall flat, with stockpiled soil reaching up to 10 feet tall. Landfill material consisting of construction and demolition debris and municipal waste makes up the first 20–30 feet below ground surface of the NCLF property. Quaternary-age deposits lie beneath the landfill material and are mainly composed of fluvial, poorly graded sands with intermixed gravelly beds and silty sands (Hargis +Associates 2020).

### *Seismicity*

The Great Valley is bounded on the west by the Great Valley fault zone and the Coast Ranges and on the east by the Foothills fault zone and the Sierra Nevada. Relatively few faults in the Great Valley have been active during the last 11,700 years. The closest faults to the project alignment with evidence of displacement during Holocene time are the Dunnigan Hills Fault (approximately 35 miles to the northwest) and the Cleveland Hills Fault (approximately 60 miles to the north). In general, active faults are located along the western margin of the Central Valley (e.g., the Great Valley Fault) and within the Coast Ranges (Jennings 1994).

According to the California Geological Survey Earthquake Shaking Potential for California, the Sacramento region would experience lower levels of shaking less frequently, due to the regions distance from known, active faults. However, very infrequent earthquakes could still cause strong shaking here (CGS 2016). The occurrence of liquefaction during an earthquake can potentially cause reduction in or loss of shear strength, seismically induced settlements, formation of boils, or lateral spreading of the liquefied soil. In order for liquefaction of soils due to ground shaking to occur, it is generally accepted that subsurface soils must be in a relatively loose state, soils must be saturated, soils must be sand like (e.g., non-plastic or of very low plasticity), and the ground motion is of sufficient intensity to act as a triggering mechanism.

Because the project site is flat, slope stability, landslide, and erosion hazards do not present substantial hazards to people and property. Site-specific effects of erosion are generally limited to construction, when stormwater runoff can carry sediment into local waterways or fugitive dust emissions.

### *Soils*

A site investigation of the project site indicated that landfill materials can be grouped into two generalized layers: a construction and demolition debris layer at the surface and an underlying municipal waste layer. The construction and demolition debris layer consists of inert materials, such as concrete, brick, wood, and metal mixed with sandy silts. The underlying municipal waste layer contains household garbage, and portions of the waste have been burned. The burned waste appears black and contains ash, metal, and deformed glass bottles. A layer of construction debris lays at a thickness of 3 to 18

feet above a municipal waste dump. Both the construction debris and municipal waste dump reach a depth of up to 31 feet below ground surface (Brown and Caldwell 2015).

In 1996, the Lot 31 parcel was divided from a larger area that was for owned by Blue Diamond. Areas within the Blue Diamond parcel were historically used for landfill operations and for discharged hydraulic wastes (Appendix D). A site investigation of the Blue Diamond parcel was completed in 2011, during which time it still encompassed the area referred to as Lot 31. Soil borings taken from areas within the current boundary of Lot 31 indicate the presence of some construction and demolition debris and native soils (Kleinfelder 2011). Native soils within the project site consist of Columbia sandy loam (NRCS 2020).

### *Paleontological Resources*

The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP 2010). Most practicing paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists and reflect the currently accepted standard practices. Many federal, state, county, and city agencies have either formally or informally adopted the SVP's standard guidelines for the mitigation of adverse construction-related impacts on paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, indicates the following:

- ▶ Vertebrate fossils and fossiliferous (fossil-containing) deposits are considered significant nonrenewable paleontological resources and are afforded protection by federal, state, and local environmental laws and guidelines.
- ▶ A paleontological resource is considered to be older than recorded history, or 5,000 years before present, and is not to be confused with an archaeological resource.
- ▶ Invertebrate fossils are not significant paleontological resources unless they are present within an assemblage of vertebrate fossils or they provide undiscovered information on the origin and character of the plant species, past climatic conditions, or the age of the rock unit itself.
- ▶ A project paleontologist, special interest group, lead agency, or local government can designate certain plant or invertebrate fossils as significant.

In accordance with these principles, the SVP outlined criteria for screening the paleontological potential of rock units and established assessment and mitigation procedures tailored to such potential (SVP 2010). Table 3.5-1 lists the criteria for high-potential, undetermined, and low-potential rock units.

**Table 3.5-1 Criteria for Determining Paleontological Potential**

Paleontological Potential	Description
High	Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant.
Undetermined	Geologic units for which little to no information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontological material.

Source: SVP 2010

The project site contains quaternary-age deposits that are mainly composed of fluvial, poorly graded sands with intermixed gravelly beds and silty sands (Hargis +Associates 2020). Although not discussed in the SVP standards, artificial fills, surface soils, and high-grade metamorphic rocks do not contain paleontological resources. While such materials were originally derived from rocks, they have been altered, weathered, or reworked such that the discovery of intact fossils would be rare. Therefore, there is little potential for the project site to contain fossils or paleontological resources (SVP 2010).

### 3.7.2 Discussion

- a) **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**
  - i) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)**
  - ii) **Strong seismic ground shaking?**
  - iii) **Seismic-related ground failure, including liquefaction?**

**No Impact.** Surface ground rupture along faults is generally limited to a linear zone a few yards wide. There are no Alquist-Priolo Earthquake Fault Zones within Sacramento County (CGS 2016). **No impact** would be associated with fault rupture, and no mitigation is required.

#### iv) Landslides?

**Less than Significant.** The project site is located within an area of low relief, having nearly flat terrain. Implementation of the project would involve grading and installation of drainage features within the project site. Project plans, including any recontouring for drainage control purposes, would be conducted in a manner consistent with CCR Title 27 Section 21090, which provides requirements for closure and post-closure procedures for landfills (e.g., measures related to drainage, erosion control, and slope stability). Thus, impacts related to landslides would be **less than significant**, and no mitigation is required.

**b) Result in substantial soil erosion or the loss of topsoil?**

**Less than Significant.** Construction of the project would include the short-term placement of soil in stockpiles during grading activities. Stockpiled soils would be exposed to wind and water erosion that could transport sediments onto adjacent parcels. However, as part of the project, a soil stockpile management plan would be prepared and implemented at the site. This plan would address the movement, relocation, staging, and use of soil stockpiles on the project site, and would include dust and erosion control measures related to the movement and use of stockpiles that would be subject to review and approval by the project engineer and SMUD. Furthermore, CCR Title 27 Section 21090 provides requirements for closure and post-closure procedures for landfills, including drainage and erosion control and slope stability. Because these requirements require the final cover to be designed to reduce erosion throughout the minimum 30-year post-closure maintenance period and beyond this impact would be **less than significant**, and no mitigation is required.

**c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?****d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?**

**Less than Significant.** The project site is located within an area of low relief, having nearly flat terrain. There are no structures proposed as part of the project that could present a risk to life or property due to the presence of unstable or expansive soils. In addition, per CCR Title 27 Section 21090, the final cover at closure of the project would be designed to accommodate anticipated settlement and subsidence and to withstand the effects of seismic events throughout the minimum 30-year post-closure maintenance period and beyond. Thus, this impact would be **less than significant**, and no mitigation is required.

**e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

**No Impact.** The project would not require the use of septic tanks or alternative wastewater disposal systems. Thus, the project would have **no impact** related to whether the soil is suitable for the use of septic tanks or alternative wastewater disposal systems, and no mitigation is required.

**f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**Less than Significant.** The project site contains quaternary-age deposits that are mainly composed of fluvial, poorly graded sands with intermixed gravelly beds and silty

sands (Hargis +Associates 2020). Although not discussed in the SVP standards, artificial fills, surface soils, and high-grade metamorphic rocks do not contain paleontological resources. While such materials were originally derived from rocks, they have been altered, weathered, or reworked such that the discovery of intact fossils would be rare. Therefore, there is little potential for the project site to contain fossils or paleontological resources (SVP 2010). Therefore, the destruction of a unique paleontological resource or site, or the destruction of a unique geological feature, would not be anticipated with project implementation. Thus, this impact would be ***less than significant***, and no mitigation is required.



### 3.8 Greenhouse Gas Emissions

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VIII. Greenhouse Gas Emissions.</b>				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.8.1 Environmental Setting

Greenhouse gases (GHGs) are gases in the earth's atmosphere that trap heat through a phenomenon called the greenhouse effect. Prominent GHGs that contribute to the greenhouse effect are carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The greenhouse effect occurs when solar radiation enters the earth's atmosphere and infrared radiation is absorbed by GHGs rather than being reflected back into space. This trapping of infrared radiation results in the warming of the atmosphere and is responsible for maintaining a habitable climate on earth. However, GHG emissions from human activities have greatly increased GHG concentrations in the atmosphere and caused levels of warming far above natural levels, resulting in global climate change. It is "extremely likely" that more than half of the observed increase in average global temperature from 1951 to 2010 was caused by anthropogenic (i.e., human-caused) increases in GHG concentrations, along with other anthropogenic forcings (IPCC 2014:5). GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing activities, electricity generation and consumption, residential and commercial on-site fuel use, and agriculture and forestry.

Climate change is a global issue because GHGs are global pollutants, and even local GHG emissions contribute to global impacts. Many GHGs have long atmospheric lifetimes, from 1 to several thousand years, and persist in the atmosphere for long enough durations to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent on multiple variables and cannot be determined with certainty, scientists have concluded that more CO<sub>2</sub> is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration, resulting in a net increase in atmospheric CO<sub>2</sub> (IPCC 2013:467).

SMAQMD is the primary agency responsible for addressing air quality concerns in Sacramento County and has established quantitative significance thresholds for evaluating GHG emissions. For construction emissions generated by land development



projects, the SMAQMD threshold is 1,100 metric tons per year of CO<sub>2</sub> equivalent (MTCO<sub>2e</sub>) (SMAQMD 2020).

### 3.8.2 Discussion

**a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less than Significant.** Project operation would not generate substantial GHG emissions because operational activities would be limited to occasional and infrequent monitoring and maintenance. However, the project would generate GHGs during construction from the use of heavy-duty off-road construction equipment and vehicle use for worker commutes. Construction would include site preparation, concrete demolition, rough grading, soil cover placement, and drainage improvements. The project's construction-related GHG emissions were estimated using CalEEMod Version 2016.3.2. A detailed discussion of the major construction activities and model assumptions is provided in Section 3.3, "Air Quality," and model outputs are included in Appendix A. Total construction activity would result in emissions of 334 MTCO<sub>2e</sub> over a period of approximately 6–9 months, which would not exceed SMAQMD's established significance threshold of 1,100 MTCO<sub>2e</sub>. Therefore, this impact would be ***less than significant***, and no mitigation is required.

**b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less than Significant.** Plans, policies, and regulations adopted for the purpose of reducing GHG emissions are developed with the purpose of reducing cumulative emissions related, primarily, to long-term operational emissions. As described previously, the project would not generate substantial GHG emissions during operations, and construction-related GHG emissions would be finite and would not exceed SMAQMD's threshold for construction emissions, which were established in order to support statewide GHG emission targets. Thus, the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. This impact would be ***less than significant***, and no mitigation is required.

### 3.9 Hazards and Hazardous Materials

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>IX. Hazards and Hazardous Materials.</b>				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.9.1 Environmental Setting

The NCLF property is identified in the California Department of Resources Recycling and Recovery Solid Waste Information System as Facility No. 34-CR-0005, with regulatory status unpermitted and operational status closed. Available information indicates that the NCLF property historically operated as a disposal site, where burning of waste occurred, by the City from approximately 1940 to 1949.

SMUD also used the NCLF property for disposal of soil and construction and demolition debris from construction projects from 1980 through 1993. Adjacent lands to the south, east, and southeast were also historically used as disposal facilities (Brown and Caldwell 2015).

The NCLF property consisting of a layer of construction and demolition debris, which lays over municipal waste. Based on boring and test pit investigations of the NCLF property, the construction and debris layer ranges from 3 to 18 feet thick in the northern portion of the landfill and increases to 19 feet thick toward the southern edge of the property. The municipal waste layer is 8 to 19 feet thick throughout the landfill. At most locations along the west and east slopes of the NCLF property, the depth of landfill materials are 7 to 11 feet deep (Brown and Caldwell 2015).

Testing of the soil indicated the following conditions within the NCLF property (Brown and Caldwell 2015):

- **Metals:** Total and soluble testing for metals in the soil indicates that arsenic, cadmium, and lead were detected above California Human Health Screening Levels for commercial and industrial land use. These samples were found at a depth of 5 – 26 feet bgs. Solubility testing indicates that if municipal waste is excavated, copper and lead concentrations would exceed California Soluble Threshold Limit Concentrations limits; and lead would also exceed Toxicity Characteristic Leaching Procedure limits.
- **Petroleum hydrocarbons:** Testing indicates that heavier range petroleum hydrocarbons are prevalent throughout the site, from surface level to 18 feet bgs. The maximum petroleum hydrocarbon detection occurred at 18 feet below ground surface in burned waste in the northern portion of the project site. Native soils beneath the waste materials have minimal levels of contamination.
- **Semi-volatile organic compounds:** Only one of 69 semi-volatile organic compounds tested was detected in soil samples, and bis(2-ethylhexyl)phthalate detections were below the screening level. Polycyclic aromatic hydrocarbons were present at the project site in mixtures. Exceedances are distributed sporadically across the project site in both surface and subsurface samples.
- **Polychlorinated biphenyls:** Only one of eight polychlorinated biphenyl (PCB) congeners was detected in soil samples, and PCB-1260 detections were below the screening level. These results are consistent with previous investigations in 1984 and 1986, the results of which indicated that PCBs are detected sporadically at the project site in shallow soil (less than 5 feet below ground surface) at concentrations of less than 1 milligram per kilogram.
- **Dioxins/furans:** Dioxins and furans were present in two samples of burned waste but at concentrations below the screening level.

The NCLF property currently has a network of seven landfill gas monitoring wells. Four of the wells are installed in soils outside of the waste limits and the remaining wells are installed in waste materials. The wells are tested for combustible gas (methane) levels on a monthly basis. The methane levels measured at the perimeter (i.e. installed in soil) wells range from non-detect to 0.6 percent, which indicates that the NCLF property is

compliant with state requirement (less than 5 percent) for subsurface combustible gas migration control. Methane gas levels in the in-fill wells (i.e. installed in waste materials) range from 20 percent to 28 percent, during the time period of 2016 to 2020 (Miller and Minshew, pers. comm., 2020).

In 1996, the Lot 31 parcel was divided from a larger area that was for owned by Blue Diamond. Areas within the Blue Diamond parcel were historically used for landfill operations and for discharged hydraulic wastes (Appendix D). A site investigation of the Blue Diamond parcel was completed in 2011, during which time it still encompassed the area referred to as Lot 31. Soil borings taken from areas within the current boundary of Lot 31 indicate the presence of some construction and demolition debris beneath the surface toward the western edge of the parcel, and the presence of arsenic and dieldrin above environmental screening levels 1.5 feet below ground surface (Kleinfelder 2011).

The State Water Resources Control Board's GeoTracker website, which provides data relating to leaking underground storage tanks (USTs) and other types of soil and groundwater contamination, along with associated cleanup activities, did not identify any hazards related to USTs and other types of contamination on or near the project site (SWRCB 2020). The California Department of Toxic Substances Control's (DTSC's) EnviroStor website, which provides data related to hazardous materials spills and cleanups, also did not identify any hazards related to any cleanup sites on or near the project site (DTSC 2020).

With respect to schools, Courtyard Private School is located approximately 0.26 mile from the North City substation and 0.08 mile from the haul route. No other schools are located within one-quarter mile of the project site.

The nearest airport is the Sacramento Executive Airport, located approximately 5.5 miles south of the project site. The project site is not located in a Very High, High, or Moderate Fire Hazard Severity Zone (CAL FIRE 2020).

### **3.9.2 Discussion**

#### **a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less than Significant.** Construction activities would involve the use of hazardous materials, such as fuels, gasoline, and oil. The use and storage of these materials could potentially expose and adversely affect workers, the public, or the environment through improper handling or use, accident, environmentally unsound disposal methods, fire, explosion, or other emergencies. Exposure to hazardous materials may result in adverse health or environmental effects.

The California Highway Patrol and California Department of Transportation are responsible for enforcing regulations related to the transportation of hazardous materials on local roadways, and the use of these materials is regulated by DTSC, as

outlined in CCR Title 22. SMUD and its construction contractors would be required to comply with the California Environmental Protection Agency's Unified Program, which protects Californians from hazardous waste and hazardous materials by ensuring consistency throughout the state regarding the implementation of administrative requirements, permits, inspections, and enforcement at the local regulatory level. Regulated activities would be managed by the Sacramento County Environmental Management Department, which is the designated Certified Unified Program Agency, and in accordance with the regulations included in the Unified Program (e.g., hazardous materials release response plans and inventories, California Uniform Fire Code hazardous material management plans and inventories). Such compliance would reduce the potential for accidental release of hazardous materials during project construction.

The project would be required to comply with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials. These regulations are specifically designed to protect the public health and the environment and must be adhered to during project construction and operation. Because the project would comply with applicable regulations, the impact would be ***less than significant***, and no mitigation is required.

**b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?**

**Less than Significant.** The project site is located on properties that were historically used as an open dump and burn dump, and most recently used to collect construction and demolition debris. Testing of soil at the project site indicates the presence of hazardous material, such as metals, semi-volatile organic compounds, pesticides, and PCBs. Samples exceeding California Human Health Screening Levels of metals, petroleum hydrocarbons, and semi-volatile organic compounds were at the surface of the NCLF property; and dieldrin and arsenic exceeding environmental screening levels were found approximately 1.5 feet below ground surface within the Lot 31 parcel. Other constituents, such as PCBs and dioxins/furans were present on the site, but at concentrations below environmental screening levels.

In addition, the general types of wastes dumped at the project site are known; however, the specific items buried from the 1940s are unknown. The components of solid waste present potential physical hazards, such as cuts from broken glass and sharp metal objects, splinters from pieces of wood, punctures, from nails and other sharp objects, and scrapes and abrasions from general handling of the solid waste. There also exists the potential for exposure to household hazardous products, such as bleach, cleansers, asbestos, and other chemicals, and potential infectious waste from domestic disposal. In addition, solid waste may emit methane, volatile organic compounds, and hydrogen sulfide during decomposition processes.

Ground-disturbing activity for the NCLF property would reach a maximum depth of 4.75 feet within the majority of the site. The maximum excavation depth, 11.5 feet, would occur along the eastern slope to prepare for construction of the drainage bench. Within Lot 31, the depth of excavation would range from approximately 7 to 3 feet, from the western to the eastern end of the site respectively. The drainage ditch would require a maximum cut of 7 feet below ground surface. Because the municipal waste level is located approximately 3 to 18 feet below ground surface, construction workers may come in contact with portions of the municipal waste layer and contaminated soils during grading activities. This may expose workers to contaminated dust emissions or wastes that contain hazardous constituents, such as asbestos or household products.

During earth moving activities, water would be applied uniformly and lightly throughout the site to provide adequately control nuisance dust. As discussed in Section 3.3, Air Quality, the WPCP would satisfy the requirements of the Fugitive Dust Rule 403 to reduce PM emissions. This rule would also limit the amount of contaminated dust emitted by the project to the extent feasible, thus reducing the potential for inhalation of contaminated soils associated with the site.

In addition, a site-specific health and safety plan (SSHSP) would be prepared before the start of construction-related activities. The SSHSP would be subject to approval by a Certified Industrial Hygienist. The contents of the SSHSP would include:

- requirements related to worker use of personal protective equipment,
- general field safety procedures,
- standard operating procedures for the handling of potentially hazardous materials, and
- worker safety training requirements.

The SSHSP also requires that all activities associated with the project would be overseen by a health and safety monitor (H&S monitor). The H&S monitor would provide safety briefings to construction workers that would address site conditions, possible hazards, and safety measures provided in the SSHSP. In addition, the H&S monitor would be charged with operation of a 4-gas meter to determine methane, oxygen, volatile organic compounds, and hydrogen sulfide concentrations. In the case that the 4-gas meter indicates high levels of noxious gases, the H&S monitor would be responsible for alerting all construction site personnel and providing direction for appropriate actions. Thus, because an SSHSP would be implemented during construction activities, the potential for construction worker exposure to gases and hazards related to site conditions would be minimal.

Furthermore, the project involves closure of former landfills, subject to compliance with requirements established by CalRecycle and select parts of CCR Title 27 solid waste regulations and regulated by Sacramento County EMD. As noted previously, these



regulations are designed to ensure that construction-related and post-closure activities associated with the project site would not pose a threat to human health and the environment. Because long-term use of the site would be regulated under CCR Title 27, the potential for release of hazardous materials into the environment would be minimal.

In terms of existing hazardous gases on the project site associated with historical landfilling, estimates of current and future landfill generation from the NCLF were modeled in 2020. This evaluation indicates that the wastes in place have largely undergone the decomposition process and only residual volumes of landfill gas are currently being generated. The existing decomposition rate is very low, slowly declining and will continue to do so with time, which is normal at old landfill sites. In addition, the modeling concluded that landfill gas generation and migration potential is considered to be very low, but not zero. During final placement of the cover system at project site, it is possible that landfill gas migration may shift based on the adjustments to the surface contours. However, SMUD would continue to monitor landfill gas migration using existing landfill gas monitoring system, including during the post-remediation period to ensure methane levels at the property boundary are in compliance with state requirements for subsurface combustible gas migration control (Miller and Minshew, pers. comm., 2020).

In general, excavated materials are not expected to be hauled off site and would be buried within the landfill and placed under the proposed cover. However, the contents of the former landfill remain unknown. In addition, while the construction and demolition debris layer of the landfill is known to be approximately 3 to 18 feet thick, the thickness throughout the site is not well known. Thus, the municipal layer could be encountered, particularly where excavation would be deeper along the drainage bench on the eastern slope of the NCLF property. As discussed above, municipal waste may contain household hazardous products, such as bleach, cleansers, asbestos, and other waste from domestic disposal that could be released into the environment. While the potential to encounter the municipal layer is considered to be low, this impact would be **potentially significant**. With implementation of the mitigation measures, potential exposure risks would not be significant.

#### **Mitigation Measure 3.9-1: Manage accidental discovery of hazardous materials**

*In the event that ~~contaminated soils or unknown~~ potentially hazardous items, which were not identified in previous site investigations, are discovered during earth moving activities, all ground-disturbing activities within 50 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify the LEA (Sacramento County EMD), if appropriate, to determine if it is appropriate to rebury the potentially hazardous materials. SMUD will also consult with other regulatory agencies such as the DTSC or RWQCB, as necessary, to determine the appropriate disposal method and location. If it is determined that the hazardous material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.*



Significance after Mitigation

Implementation of Mitigation Measure 3.9-1 would minimize impacts on accidental release into the environment because if a potentially hazardous material is encountered, it would be evaluated for reburial at the site or removal. This would ensure that any discovered hazardous materials would not be released into the environment or cause a substantial hazard to this public. Thus, this impact would be a reduced a ***less-than-significant*** level.

- c) **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

**Less than Significant.** The nearest school to the project site is Courtyard Private School, which is located 0.26 mile from the North City substation and 0.08 mile from the haul route. As discussed above under a), compliance with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials would protect the public health and the environment during construction of the project and use of the haul routes. Existing hazardous materials on the project site, such as contaminated soils and remnants from the former municipal landfill, may present a health risk to construction workers, as discussed above under b). However, this would occur at a distance greater than 0.25 mile from the school. Therefore, this impact would be ***less than significant***, and no mitigation is required.

- d) **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

**No Impact.** Government Code Section 65962.5 requires that DTSC compile and maintain a list of hazardous waste facilities subject to corrective action, land designated as hazardous waste property, and hazardous waste disposals on public land. The project alignment is not located on a site included on a list of hazardous material sites (SWRCB 2020; DTSC 2020). Thus, there would be ***no impact***, and no mitigation is required.

- e) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

**No Impact.** The project site is not located within an airport land use plan or within 2 miles of any public or public use airport. There would be ***no impact***, and no mitigation is required.

**f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No Impact.** The project is not located in an area where it would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan (City of Sacramento 2005). The project site is generally isolated from the surrounding residential and industrial community and adjacent Blue Diamond plant by the Western Pacific Railroad berms to the west and south. The American River, located north of the site, forms a barrier to evacuations. Development of the project would not interfere with the emergency evacuation routes identified for the downtown area in the City of Sacramento Emergency Operations Plan. These routes include the following streets: 15th (south), 16th (north), H (west), I (west), P (west), Q (east), Capitol (east), and Capitol Mall (west) (City of Sacramento 2005). Therefore, the project site would not be used as an evacuation route in the event of an emergency, and there would be **no impact** on an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

**g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?**

**Less than Significant.** The project site is located on land formerly used as a landfill that is sparsely vegetated. It is not located within any designated high fire hazard severity zones (CAL FIRE 2020). While the use of fuels and construction equipment could pose a risk to fire ignition, the potential to result in a wildland fire is low because of the location and condition of the project site. Therefore, the impact related to the exposure of people or structures to the risk of loss, injury, or death involving wildland fires would be **less than significant**, and no mitigation is required.

### 3.10 Hydrology and Water Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>X. Hydrology and Water Quality.</b>				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial on- or offsite erosion or siltation;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.10.1 Environmental Setting

##### *Surface Water*

The project site is located along the Lower American River and within the American River watershed, which encompasses approximately 1,900 square miles from the western slope of the Sierra Nevada to the City of Sacramento. The river is regulated by dams, canals, and pipelines for power generation, flood control, water supply, recreation, fisheries, and wildlife management. The project site is located approximately 150 feet south of the American River.

### *Water Quality*

The City operates under a Phase I National Pollution Discharge Elimination System (NPDES) permit for stormwater municipal discharges to surface waters (NPDES No. CAS082597). The permit requires that the City impose water quality and watershed protection measures for all development projects. The intent of the waste discharge requirements in the permit is to attain water quality standards and protection of beneficial uses consistent with the Central Valley Regional Water Quality Control Board's Basin Plan. The NPDES permit prohibits discharges from causing violations of applicable water quality standards or result in conditions that create a nuisance or water quality impairment in receiving waters. A key component of the NPDES permit is the implementation of the Stormwater Quality Improvement Plan (SQIP), which consists of six Minimum Control elements 1) public education and outreach, 2) commercial/industrial control, 3) detection and elimination of illicit discharges, 4) construction stormwater control, 5) postconstruction stormwater control for new development and redevelopment 6) pollution prevention/good housekeeping for municipal operations). In addition, the City's Land Grading and Erosion Control Ordinance and Stormwater Management and Discharge Control Code provide additional regulation and guidance to prevent degradation of water quality.

### *Groundwater*

The Sustainable Groundwater Management Act (SGMA) was adopted in September 2014 with implementation beginning January 1, 2015. Uncodified legislative findings of SGMA state that properly managed groundwater resources help protect communities, farms, and the environment against prolonged dry periods and climate change, thereby preserving water supplies for existing and potential beneficial uses. The project site overlays the Sacramento Valley–South American Subbasin. The California Department of Water Resources has designated this subbasin as a high-priority groundwater basin under the SGMA, requiring adoption of a groundwater sustainability plan or submittal of an alternative plan. In compliance with SGMA, the Sacramento Central Groundwater Authority has prepared a South American Subbasin Alternative Submittal (DWR 2020).

Groundwater is encountered beneath the project site in native materials consisting of sands with gravels and silts. There are six existing groundwater monitoring wells at the NCLF. Groundwater levels beneath the site are anticipated to fluctuate due to irrigation, large precipitation events, and seasonal flows in the American River, and typically range from 32 to 37 feet below ground surface in native materials consisting of sands with gravels and silts. Groundwater generally flows to the southwest across the project site at a relatively flat gradient of 0.002 foot/foot. Groundwater is not currently in contact with landfill materials (Brown and Caldwell 2015). Consistent with historic trends at the NCLF, the following regulatory exceedances are present (Hargis + Associates 2020):

- Arsenic was detected above the California Maximum Contaminant Limit (MCL)/California Environmental Screening Level (ESL) in five wells.

- Cadmium was detected above the ESL in two wells.
- Chromium was detected about the MCL/ESL in one well.
- Cobalt was detected above the MCL in one well and above the ESL in three wells.
- Copper was detected above the ESL in four wells.
- Lead was detected above the MCL in one well and above the ESL in two wells.
- Nickel was detected above the ESL in three wells and above the MCL in one well.
- Vanadium was detected above the ESL in one well.
- Zinc was detected above the ESL in one well.

### *Flooding*

The project site is within an area with reduced flood risk due to levee (Zone X) as identified on the Federal Emergency Management Agency (FEMA) flood maps (FEMA 2015).

### **3.10.2 Discussion**

#### **a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?**

**Less than Significant.** As noted above in Section 3.10.1, “Environmental Setting,” the level of some contaminants in groundwater underlying the project site exceeds the MCL and ECL. However, groundwater would not be encountered during construction-related activities; thus, project implementation would not degrade groundwater quality.

On-site drainage would be redirected toward the proposed drainage ditch and infiltration pond and would not come in contact with any waters of the state or United States. All imported soils would be sampled, and before it was distributed on the site, sampling results would be reviewed and approved by the CalRecycle and Sacramento County Environmental Management Department. No contaminated soils would be used as part of the soil cover, upon which stormwater would flow. In addition, as described in Section 2.4.4.1, “Water Pollution Control Plan,” a WPCP would be implemented during construction to prevent sediment from leaving the project site. The WPCP would identify best management practices that address excavation areas, stockpile areas, street entrances and exits, construction vehicle maintenance areas, water tanks, dust suppression activities, and postconstruction site stabilization.

Therefore, the project would not affect surface water or groundwater quality, and this impact would be ***less than significant***, and no mitigation is required.

- b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

**Less than Significant.** The project would include closure of the NCLF property and construction of drainage facilities that would route runoff to an infiltration pond. Excavation activities would be limited to 11.5 feet below ground level within the NCLF property and 7 feet within Lot 31. Because groundwater sits at 32 to 37 feet below ground surface within the site, it would not be encountered during project activities. The stormwater infiltration through the pond would recharge groundwater supplies. Because soil used in the final cap of the landfill would be tested to prevent placement of contaminated soil onto the project site, polluted runoff or percolated water would not be expected.

The project would not use the site's groundwater resources to meet construction or operational water demands. Water for construction would be provided to the site by the City of Sacramento from existing water facilities. No water would be required for operation of the project. As a result, project implementation would not substantially decrease groundwater supplies or interfere with groundwater recharge. As a result, this impact would be **less than significant**, and no mitigation is required.

- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**
- i) Result in substantial on- or offsite erosion or siltation;**
  - ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;**
  - iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**
  - iv) Impede or redirect flood flows?**

**Less than Significant.** The project site would be graded so that runoff would drain in a generally west/east direction, as depicted in Figure 2-2. Easterly flowing runoff would be collected in the project infiltration pond. West-flowing runoff would be collected by the Western Pacific Railroad's surface water collection system, which has excess drainage capacity. Surface water runoff to the west would be minimized to the extent feasible. Grading along the project site edges would match that of the adjacent properties and would be performed such that no runoff would reach the American River or otherwise come into contact with waters of the state.

Thus, while the project would alter the existing drainage pattern, it would not result in substantial on- or off-site erosion or siltation, result in flooding off-site, exceed the capacity of existing or planned stormwater drainage systems, or impede or redirect

flood flows. In addition, the project site is located within an area with reduced flood risk due to levee (Zone X) as identified on FEMA flood maps (FEMA 2015), and would therefore not be subject to flood hazard. This impact would be ***less than significant***, and no mitigation is required.

**d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

**Less than Significant.** The project site is at an inland location that is outside of any ocean-related tsunami zones. The site is separated from the American River by flood control levees, thus limiting risks of flood or seiche. Thus, the project would not be at risk of flood, seiche, tsunamis, or the release of pollutants from inundation, and the impact would be ***less than significant***, and no mitigation is required.

**e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

**Less than Significant.** As discussed under (a), above, the project includes implementation of a WPCP and other features that would substantially reduce the pollution of runoff on the project site. Stormwater that drains to the infiltration pond would recharge groundwater supplies. Therefore, the project would not adversely affect surface water or groundwater quality or groundwater recharge. Thus, the project would not obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be ***less than significant***, and no mitigation is required.



### 3.11 Land Use and Planning

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XI. Land Use and Planning.</b>				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.11.1 Environmental Setting

The project site and surrounding areas, excluding the American River, are relatively flat and open, are zoned by Sacramento County as M-2-SPD-Heavy Industrial/American River Parkway Corridor/Special Planning District-East and are identified as Public and Employment Center (Low Rise) as part of the Central City Community Plan. Surrounding land uses consist primarily of industrial or residential uses.

#### 3.11.2 Discussion

##### a) Physically divide an established community?

**No Impact.** There is no housing on the project site, and the project would have no potential to physically divide an established community. The project site would continue to be vacant land with implementation of the project. Therefore, implementation of the project would not physically divide an established community. There would be **no impact**, and no mitigation is required.

##### b) 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?

**No Impact.** Project construction would occur within an area zoned by Sacramento County as M-2-SPD-Heavy Industrial/American River Parkway Corridor/Special Planning District-East and identified as Public and Employment Center (Low Rise) as part of the Central City Community Plan. The project would include remediation of the NCLF property and development of an infiltration pond on the City of Sacramento Lot 31 property. Both sites are currently vacant and would remain as such with implementation of the project. Thus, the project would not result in any land use changes and would not conflict with any adopted plans, policies, or regulations adopted for avoiding or mitigating an environmental effect. Therefore, this impact would be **no impact**, and no mitigation is required.

### 3.12 Mineral Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XII. Mineral Resources.</b>				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.12.1 Environmental Setting

Existing mineral extraction activities in and around Sacramento include fine (sand) and coarse (gravel) construction aggregates, as well as clay. Construction aggregates come from two different sources: hardbed rock sources and river channel (alluvial) sources. Generally, sand, gravel, and clay are used as fill and for construction of highways and roads, streets, urban and suburban developments, canals, aqueducts, and pond linings.

Under the State Mining and Reclamation Act, areas containing economically significant mineral deposits are classified and mapped. The project site is not classified as an area that is likely to contain substantial mineral deposits (Dupras 1988; Sacramento County 2010).

#### 3.12.2 Discussion

- a) **Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**
- b) **Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

**No Impact.** The project site is heavily disturbed and has historically been used as a solid waste disposal site and a substation. The site is not classified as an area containing known mineral deposits, so implementing the project would not be expected to result in the loss of known mineral resources that would be of value to the region or residents of the state (Dupras 1988; Sacramento County 2010). Therefore, the loss of a known mineral resources would not occur as a result of project implementation. **No impact** would occur, and no mitigation is required.

### 3.13 Noise

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIII. Noise.</b>				
Would the project result in:				
a) Generation of a substantial temporary or permanent 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 in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.13.1 Environmental Setting

##### *Acoustic Fundamentals*

Acoustics is the scientific study that evaluates the perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Non-auditory behavioral effects of noise on humans are primarily subjective effects, such as annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communication, sleep, and learning.

Noise is typically expressed in decibels (dB), which is a common measurement of sound energy. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall

sound levels and loudness to human perception, frequency-dependent weighting networks were developed, identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound levels are used to predict community response to noise from the environment, including noise from transportation and stationary sources, and are expressed as A-weighted decibels. All sound levels discussed in this section are A-weighted decibels unless otherwise noted.

The intensity of environment noise fluctuates over time, and several different descriptors of time-average noise levels are used. The noise descriptors used in this chapter include:

- Equivalent Noise Level ( $L_{eq}$ ): The equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level)
- Maximum Noise Level ( $L_{max}$ ): The highest instantaneous noise level during a specific time period.

### Noise Generation and Attenuation

Noise can be generated by many sources, including mobile sources such as automobiles, trucks, and airplanes and stationary sources such as activity at construction sites, machinery, and commercial and industrial operations. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on a variety of factors. Atmospheric conditions such as wind speed, wind direction, turbulence, temperature gradients, and humidity alter the propagation of noise and affect levels at a receiver. The presence of a barrier (e.g., topographic feature, intervening building, and dense vegetation) between the source and the receptor can provide substantial attenuation of noise levels at the receiver. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may function as noise barriers. To provide some context to noise levels described throughout this section, common sources of environmental noise and associated noise levels are presented in Table 3.13-1.

**Table 3.13-1 Typical Noise Levels**

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet	100	
Gas lawnmower at 3 feet	90	
Diesel truck moving at 50 mph at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large conference room (background)
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall (background)
Quiet rural nighttime	20	Broadcast/Recording Studio
	10	
Threshold of Human Hearing	0	Threshold of Human Hearing

Notes: dB = A-weighted decibels; mph = miles per hour  
Source: Caltrans 2013

### Ground Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., trains, buses, other vehicles).

### *Noise Regulations*

#### Federal

To address the human response to ground vibration, the Federal Transit Authority (FTA) has guidelines for maximum-acceptable vibration impact criteria for different types of land uses. These guidelines are presented in Table 3.13-2.

**Table 3.13-2 Ground-Borne Vibration Impact Criteria for General Assessment**

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 microinch/second)		
	Frequent Events <sup>1</sup>	Occasional Events <sup>2</sup>	Infrequent Events <sup>3</sup>
<i>Category 1:</i> Buildings where vibration would interfere with interior operations	65 <sup>4</sup>	65 <sup>4</sup>	65 <sup>4</sup>
<i>Category 2:</i> Residences and buildings where people normally sleep	72	75	80
<i>Category 3:</i> Institutional land uses with primarily daytime uses	75	78	83

Notes: VdB re 1 microinch/second = vibration decibels referenced to 1 microinch/second and based on the root mean square velocity amplitude.

<sup>1</sup> "Frequent Events" is defined as more than 70 vibration events of the same source per day.

<sup>2</sup> "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

<sup>3</sup> "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

<sup>4</sup> This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018

### State

In 2013, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2013). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.13-3 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

**Table 3.13-3 Caltrans Recommendations Regarding Levels of Vibration Exposure**

PPV (in/sec)	Effect on Buildings
0.4–0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006–0.019	Vibration unlikely to cause damage of any type

Notes: in/sec = inches per second; PPV = peak particle velocity.

Source: Caltrans 2013

Local

Although SMUD is not subject to the goals and policies of the City of Sacramento, the City's 2035 General Plan Environmental Constraints Element contains noise policies and standards (e.g., exterior and interior noise-level performance standards for new projects affected by or including non-transportation noise sources, and maximum allowable noise exposure levels for transportation noise sources) and the City Noise Ordinance contains noise limits for sensitive receptors that are considered relevant to the evaluation of potential noise impacts as a result of the project. Applicable noise standards used in this analysis are summarized below.

8.68.060 Exterior Noise Standards

- A. The following noise standards, unless otherwise specifically indicated in this article, shall apply to all agricultural and residential properties.
1. From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five (55) dBA.
  2. From ten p.m. to seven a.m. the exterior noise standard shall be fifty (50) dBA.
- B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards [Table 3.13-4] in any one hour by:

**Table 3.13-4 Exterior Noise Standards**

Cumulative Duration of the Intrusive Sound	Allowance Decibels
Cumulative period of 30 minutes per hour	0
Cumulative period of 15 minutes per hour	+5
Cumulative period of 5 minutes per hour	+10
Cumulative period of 1 minute per hour	+15
Level not to be exceeded for any time per hour	+20

- C. Each of the noise limits specified in subsection B. of this section shall be reduced by 5 dBA for impulsive or simple tone noises, or for noises consisting of speech or music.
- D. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in subsection B of this section, the allowable noise limit shall be increased in 5 dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.



### 8.68.080 Exemptions

The following activities shall be exempted from the provisions of this chapter:

- D. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of seven a.m. and six p.m., on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, and between nine a.m. and six p.m. on Sunday; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections may permit work to be done during the hours not exempt by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work.

### *Existing Sensitive Receptors*

The project site is in a primarily undeveloped area bounded by Western Pacific Railroad track to the west, the American River and levee to the north, and undeveloped parcels to the south and southeast. Existing noise sources include trains traveling along the Western Pacific Railroad track and boating activity along the American River.

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. The nearest noise-sensitive land uses to the project site are the single-family residences located approximately 780 feet to the west from the center edge of the project site.

### **3.13.2 Discussion**

- a) **Generation of a substantial temporary or permanent 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 in other applicable local, state, or federal standards?**

**Less than Significant.** The project would result in temporary increases in noise levels during construction as a result of heavy equipment movement and materials hauling, but no permanent increases in ambient noise levels would occur during post-remediation monitoring and maintenance.

Construction-related noise would result from the use of heavy-duty equipment for excavation, demolition, material hauling, and water trucks for dust suppression.

Construction noise would be short-term and temporary, and operation of heavy-duty construction equipment would be intermittent throughout the day during construction.

Based on the types of activities that would occur (e.g., excavation, fill, on-site material hauling), typical equipment such as dozers, excavators, compactors, work trucks, and haul trucks would be required. Reference noise levels for these equipment types are shown in Table 3.13-5.

**Table 3.13-5 Noise Emission Levels from Construction Equipment**

Equipment Type	Typical Noise Level (dBA) at 50 Feet
Compactor	83
Excavator	81
Dozer	82
Dump truck	76
Concrete/Rock Crusher	82-87

Notes: reference noise levels based on actual measured levels.

Source: FTA 2018; City of San Marcos 2011.

It was conservatively assumed that the loudest four pieces of equipment—a compactor, a dozer, a concrete/rock crusher, and an excavator—would be operating simultaneously in close proximity to each other, combining to generate a modeled maximum noise level from construction activity. Note that pieces of construction equipment move around a construction site and generally are not close to each other for safety reasons; thus, noise levels would fluctuate throughout the day, depending on the actual activity taking place and equipment used at any one location on the site.

Assuming simultaneous operation of a dozer, a compactor, a concrete/rock crusher, and an excavator and accounting for typical use factors of individual pieces of equipment and activity types along with typical attenuation rates, on-site construction-related activities could result in hourly average noise levels of approximately 83  $L_{eq}$  and 89 dBA  $L_{max}$  at 50 feet. As described above, the nearest sensitive land uses are residences located approximately 780 feet to the west of the project site. At this distance, noise from the use of heavy-duty equipment would attenuate, from distance alone, to 57 dBA  $L_{eq}$  and 63 dBA  $L_{max}$ .

Within the City of Sacramento, the City's Municipal Code Section 8.28.060 exempts certain activities, including construction, from the City's noise standards as long as the activities are limited to the hours of 7 a.m. to 6 p.m. on Monday through Saturday and 9 a.m. to 6 p.m. on Sunday. This exemption provides that construction equipment must include appropriately maintained exhaust and intake silencers. However, the City does not specify limits in terms of maximum noise levels that may occur during the allowable construction hours.

As described in the project description, construction activities would occur during the daytime hours when construction noise is exempt. Thus, implementing the project would

not generate a substantial temporary increase in ambient noise levels in excess of allowable standards in the vicinity of the project. The impact would be ***less than significant***, and no mitigation is required.

**b) Generation of excessive groundborne vibration or groundborne noise levels?**

**Less than Significant.** Construction would result in varying degrees of temporary ground vibration and noise levels from the intermittent operation of various types of construction equipment and activities. Equipment that would be used for excavation would include dozers, excavators, haul trucks, and compactors. Of these, a large dozer would generate the highest ground vibration levels on the project site. In addition, up to 50 truck trips could occur per day to haul fill material to the site, generating vibration at receptors located near haul routes. Thus, this analysis focuses on vibration levels from the use of a dozer and haul trucks on haul routes. See Figure 2-3 for the location of haul routes.

Large dozers generate vibration levels that could result in 0.089 inch per second (in/sec) peak particle velocity (PPV) and 87 vibration decibels (VdB) at 25 feet of operational construction equipment, and loaded haul trucks can generate vibration levels of 0.076 in/sec PPV and 86 VdB at 25 feet (FTA 2006). Caltrans recommends a level of 0.2 in/sec PPV with respect to structural damage, and FTA recommends a maximum acceptable level of 75 VdB with respect to human response for residential uses (i.e., annoyance) for events that occur from 30 to 70 times per day. FTA guidance for maximum acceptable VdB levels is primarily concerned with sleep disturbance in residential areas, which can be avoided by keeping exposures at or below 75 VdB during typical sleeping hours.

Construction on the project site would be located approximately 780 feet from any sensitive land use and approximately 420 feet from the nearest structure, located west of the project site. Thus, on-site construction activities would occur beyond 50 feet from any existing structure or sensitive land use and therefore would not result in any potential for structural damage or annoyance. Truck hauling activity could result in 50 truck trips per day during the most intense period of construction. After haul trucks exit the freeway, they would use 28th Street, 29th Street, and 30th Street to access the site. Residences are located as close as 30 feet from the edge of these roadways. At 30 feet from a loaded and moving truck, vibration levels would reach 83.6 VdB and 0.068 in/sec PPV, not exceeding the recommended levels where structural damage could occur. However, vibration levels would exceed the recommended level for human annoyance (75 VdB). Nonetheless, as described above, construction activities would occur during the daytime hours when people are generally awake and less sensitive to noise levels. In addition, traffic volumes on these roads would also be higher during these times; therefore, an increase in haul trips associated with temporary construction activities would not result in new or substantially different vibration sources than already exist. Because project construction activities would not occur during typical sleep hours (i.e., construction would occur only between 7 a.m. and 6 p.m. on Monday through Friday

and between 9 a.m. and 6 p.m. on Sunday), the project would not result in the exposure of existing off-site receptors to excessive ground vibration levels. This impact would be ***less than significant***, and no mitigation is required.

- c) **For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact.** There are no private airstrips or airports within 2 miles of the project site. The nearest airport is the Sacramento Executive Airport, located approximately 5.5 miles south of the project site. In addition, the project would be limited to short-term temporary construction work associated with landfill closure; thus, no new land uses where people would work or reside would be constructed. There would be ***no impact***, and no mitigation is required.

### 3.14 Population and Housing

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIV.Population and Housing.</b>				
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.14.1 Environmental Setting

The project site is located on the northern edge of Sacramento's Boulevard Park neighborhood. The surrounding land uses are characterized by existing and former industrial uses with a mix of commercial/residential/park uses located further to the south and across the American River Parkway to the north.

#### 3.14.2 Discussion

- a) **Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

**No Impact.** The project involves installation of a soil cover and construction of drainage improvements within the project site. Upon completion of construction, no new permanent jobs or residents would be located at the project site. Therefore, the project would not result in unplanned population growth, either directly or indirectly. **No impact** would occur, and no mitigation is required.

- b) **Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

**No Impact.** No persons or homes would be displaced as a result of project construction or operation. Therefore, the project would have **no impact**, and no mitigation is required.

### 3.15 Public Services

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
<b>XV. Public Services.</b>				
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.15.1 Environmental Setting

The project site and haul route are located north of the New Era Park, Boulevard Park, and Marshall School neighborhood in the City of Sacramento in Sacramento County. The project site is bounded by Western Pacific Railroad tracks and right-of-way to the west, the American River and levee to the north, undeveloped parcels owned by Blue Diamond Growers and the City of Sacramento to the east, and SMUD-owned property to the south and southeast. The Boulevard Park neighborhood of Sacramento is located south of the project site.

##### *Fire Protection Services*

The Sacramento Fire Department provides fire protection services to the project site, as well as the entire city. The project site is within the response zone of Fire Station #2 and Fire Station #14 (SFD 2019). Fire Station #2 is located at 1229 I Street, approximately 1 mile southwest of the project site, and Fire Station #14 is located at 1341 North C Street, approximately 0.5 mile west of the site.

##### *Police Protection Services*

The Sacramento Police Department is principally responsible for providing police protection services in the City of Sacramento, including the project site.

The project site is located within the patrol area of the Central Command and beat 3B (SPD 2016:8). The Central Command is based at the Richards Police Facility, located at 300 Richards Boulevard, approximately 1.5 miles west of the project site.

### *Schools*

The project site is located within the Sacramento Unified School District. The closest school to the project site is the Courtyard Private School, located approximately 0.26 mile from the project site at 205 24th Street. The nearest public school is the Phoebe A. Hearst Elementary School, located at 1410 60th Street, approximately 3.2 miles southeast of the site.

### *Parks and Other Public Facilities*

The park nearest to the project site is Ulysses S. Grant Park, a 2.37-acre neighborhood park located at 205 21st Street, approximately 0.3 mile from the site. The next closest park is Leland Stanford Park, a 2.74-acre park located at 205 27th Street, approximately 0.5 mile southeast of the project site. Sutter Landing Regional Park, approximately 166.83 acres in size, is located approximately 0.5 mile to the east of the project site and is the largest park in the area.

## **3.15.2 Discussion**

- a) **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

### **Fire protection?**

**No Impact.** Implementation of the project would not increase demand for Sacramento Fire Department fire protection services, because the project would not generate new residents, which is the driving factor for fire protection services, nor would it result in the operation of additional structures on the project site that could generate calls for service. Because the project would not increase demand for fire protection services, no construction of new or expansion of existing fire service facilities would be required. Therefore, there would be **no impact**, and no mitigation is required.

### **Police protection?**

**No Impact.** Implementation of the project would not increase demand for Sacramento Police Department police protection services, because the project would not generate new residents, which is the driving factor for police protection services, nor would it result in the operation of additional structures on the project site that could generate calls for service. Because the project would not increase demand for police protection



services, no construction of new or expansion of existing police service facilities would be required. Therefore, there would be ***no impact***, and no mitigation is required.

### **Schools?**

**No Impact.** The project would not provide any new housing, so it would not generate new students in the community or result in an increase in employment opportunities that could indirectly contribute new students to the local school district. Therefore, there would be ***no impact***, and no mitigation is required.

### **Parks?**

**No Impact.** The project would not provide any new structures that could result in additional residents or employees or necessitate new or expanded park facilities. Therefore, there would be ***no impact***, and no mitigation is required.

### **Other public facilities?**

**No Impact.** No other public facilities in the project area could be affected by implementation of the project. Therefore, there would be ***no impact***, and no mitigation is required.

### 3.16 Recreation

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVI.Recreation.</b>				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.16.1 Environmental Setting

The project site and haul route are located north of the New Era Park, Boulevard Park, and Marshall School neighborhoods in the City of Sacramento in Sacramento County. The park nearest to the project site is Ulysses S. Grant Park, a 2.37-acre neighborhood park located at 205 21st Street, approximately 0.3 mile from the site. The next closest park is Leland Stanford Park, a 2.74-acre park located at 205 27th Street, approximately 0.5 mile southeast of the project site. Sutter Landing Regional Park is an approximately 166.83-acre park and is the largest park in the area with the most amenities. It is located at 20 28th Street, approximately 0.5 mile east and southeast of the project site.

#### 3.16.2 Discussion

- a) **Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

**No Impact.** The project does not include any new development that could increase the use of existing parks or recreational facilities. Therefore, there would be **no impact**, and no mitigation is required.

- b) **Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

**No Impact.** The project does not include any new development that could necessitate new or expanded recreational facilities. Therefore, there would be **no impact**, and no mitigation is required.

### 3.17 Transportation

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVII. Transportation.</b>				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.17.1 Environmental Setting

**3.17.2 Regional access to the project site is available from Business 80, via Exit 7B (E Street). The majority of local roadways within Downtown Sacramento in the vicinity of the project site are paved two-way streets, with one lane of travel in each direction. Primary access to the project site is limited to gravel roadways that connect the project site to 28th Street near Sutter's Landing Regional Park, and secondary access for the project site would be from C and 20<sup>th</sup> Streets. Discussion**

- a) **Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?**

**Less than Significant.** Construction equipment and the materials staging area would be located adjacent to the project site on SMUD Station E property, located immediately south of the NCLF site. During construction, primary access to the site would be maintained, with the primary access for construction equipment, deliveries, and workers from 28th Street, near Sutter's Landing Regional Park and secondary access would be from C and 20<sup>th</sup> Streets. Trucks and construction equipment would enter and exit the project site along existing gravel roadways, as shown in Figure 2-3. The project is located in an area that is not associated with a circulation system that is available for use by the general public. The project would not affect transit, roadway, bicycle, or pedestrian programs, plans, ordinances, or policies. This impact would be **less than significant**, and no mitigation is required.

**b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), which pertains to vehicle miles travelled?**

**Less than Significant.** Temporary construction activities would result in slight increases in vehicle trips associated with worker commutes and materials (i.e., soil) delivery (a maximum of 50 truck trips per day are expected, see Section 3.13, “Noise”). However, these additional trips would occur only during the construction period. During operation, no new vehicle trips would be generated, because the project involves closure of a former landfill and development of drainage facilities. Because the project would not change the amount of development projected for the area, would be consistent with the population growth and vehicle miles traveled projections in regional and local plans, and would result in only a slight increase in vehicle miles traveled during construction, this impact would be ***less than significant***, and no mitigation is required.

**c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**No Impact.** The project does not involve any changes in road geometry or new uses. There would be ***no impact***, and no mitigation is required.

**d) Result in inadequate emergency access?**

**No Impact.** The project involves the installation of a soil cover and construction of drainage improvements within the project site. It is not located in an area where public access is available and would not be used as an emergency evacuation route. There would be ***no impact***, and no mitigation is required.

### 3.18 Tribal Cultural Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVIII. Tribal Cultural Resources.</b>				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code Section 21080.3.1(b)?	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 3.18.1 Environmental Setting

Under PRC section 21080.3.1 and 21082.3, SMUD must consult with tribes traditionally and culturally affiliated with the project area that have requested formal notification and responded with a request for consultation. The parties must consult in good faith. Consultation is deemed concluded when the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource when one is present or when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed on during the consultation process must be recommended for inclusion in the environmental document.

##### *Tribal Consultation*

On August 24<sup>th</sup> and 26<sup>th</sup>, 2020, SMUD sent notification letters that the project was being addressed under CEQA, as required by PRC 21080.3.1, to the four Native American tribes that had previously requested such notifications, Wilton Rancheria, United Auburn Indian Community (UAIC), Shingle Springs Band of Miwok Indians, and Lone Band of Miwok Indians. Shingle Springs and UAIC responded requesting consultation. While the specific details of consultation are confidential pursuant to California law, consultation resulted in the conclusion that there are no known resources on the project site considered to be tribal cultural resources as defined in

PRC Section 21074; however, the area is sensitive for tribal cultural resources and mitigation measures were requested.

The cultural resources study (ICF 2020) prepared for the project included a request for a Native American Heritage Commission (NAHC) Sacred Lands File search. The NAHC search indicated that the Sacred Lands File was positive for the presence of Native American resources within the project site.

### 3.18.2 Discussion

**Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

- a) **Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?**

**No Impact.** The project site contains no tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources. There would be ***no impact***, and no mitigation is required.

- b) **A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?**

**Less than Significant with Mitigation Incorporated.** Consultation with UAIC and Shingle Springs revealed that the project site is considered culturally sensitive. Although the NAHC Sacred Lands File was positive, neither tribe identified a tribal cultural resource. Therefore, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. This impact would be potentially significant.

**Mitigation Measure 3.18-1: Avoid Tribal Cultural Resource; Post Ground Disturbance**

*A minimum of seven days prior to beginning earthwork, clearing and grubbing, or other soil disturbing activities, SMUD shall contact the Tribes with the proposed earthwork start-date and a Tribal Representative or Tribal Monitor shall be invited to inspect the project site, including any soil piles, trenches, or other disturbed areas, within the first five days of groundbreaking activity, or as appropriate for the type and size of project. During this inspection, a Tribal Representative or Tribal*

*Monitor may provide an on-site meeting for construction personnel information on TCRs and workers awareness brochure.*

*If any TCRs are encountered during this initial inspection, or during any subsequent construction activities, Mitigation Measure 3.18-2 shall be implemented.*

**Mitigation Measure 3.18-2: Unanticipated Discoveries of Potential TCRs**

*If any suspected TCRs are discovered during ground disturbing construction activities, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Appropriate Tribal Representative(s) shall be immediately notified and shall determine if the find is a TCR (pursuant to PRC section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary.*

*Preservation in place is the preferred alternative under CEQA and the Tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project area where they will not be subject to future impacts. The Tribe does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a Tribal Cultural Resource may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.*

Implementation of Mitigation Measures 3.18-1 and 3.18-2 would reduce impacts to tribal cultural resources to a **less-than-significant** level by requiring notification of tribal representatives prior to earth-disturbing activities and, in the case of a discovery, appropriate treatment and proper care of significant tribal cultural resources.



### 3.19 Utilities and Service Systems

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIX.Utilities and Service Systems.</b>				
Would the project:				
a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.19.1 Environmental Setting

The project site currently contains the North City substation, which will be decommissioned before project construction begins. The project site is not served with water, stormwater, wastewater, treatment or stormwater drainage, or telecommunication facilities.

#### 3.19.2 Discussion

- a) **Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?**

**Less than Significant.** The project does not include the construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunication facilities and therefore could not cause significant environmental effects related to the provision of these facilities. The project does include stormwater drainage improvements to accommodate a 100-year storm event. East-flowing runoff would be collected in the project infiltration pond. West-flowing runoff would be collected

by the Western Pacific Railroad's surface water collection system, which has excess drainage capacity. Surface water runoff to the west would be minimized to the extent feasible. Furthermore, the project would implement a WPCP that includes best management practices that address excavation areas, stockpile areas, street entrances and exits, construction vehicle maintenance areas, water tanks, dust suppression activities, and post-construction site stabilization to minimize stormwater runoff. The environmental impacts associated with development of the on-site stormwater drainage system are evaluated throughout this IS. Therefore, the impact would be ***less than significant***, and no mitigation is required.

- b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?**

**Less than Significant.** Project construction would require a small amount of water for dust suppression activities that would be provided by the City of Sacramento and stored on the site in water tanks. The project would not require new water supplies upon completion of the project. Therefore, the impact related to water supplies would be ***less than significant***, and no mitigation is required.

- c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?**

**No impact.** The project involves the installation of a soil cover and construction of drainage improvements within the project site. Project implementation would not result in wastewater generation or require wastewater treatment. There would be ***no impact***, and no mitigation is required.

- d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**
- e) Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

**Less than Significant.** The project would the installation of a soil cover and construction of drainage improvements within the project site. Substation concrete debris would be consolidated within the NCLF property for use as part of the landfill rough grading. Waste (soil and construction and demolition debris) that is excavated as part of the landfill rough grading of the east slope of the landfill would be consolidated over the landfill surface. Soil is not expected to be hauled off site, however, in the event that any excavated soil would not be consolidated into the rough grading of the project site would be sampled and submitted to the LEA. If hazardous waste is encountered, it would remain on-site or otherwise be disposed of in accordance with applicable statutes and regulations, under the direction of the LEA. Thus, this impact would be ***less than significant***, and no mitigation is required.

### 3.20 Wildfire

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XX. Wildfire.</b>				
Is the project located in or near state responsibility areas or lands classified as high fire hazard severity zones?				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.20.1 Environmental Setting

The project site is located within a Local Responsibility Area that is designated as a non-Very High Fire Hazard Severity Zone (CAL FIRE 2008). However, Chapter 7, "Public Health and Safety," of the Background Report for the City of Sacramento 2035 General Plan recognizes areas near the American River to be subject to urban wildfires due to the dense tree coverage on the river shorelines (City of Sacramento 2015).

#### 3.20.2 Discussion

- a) **Substantially impair an adopted emergency response plan or emergency evacuation plan?**
- b) **Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**
- c) **Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

- d) **Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

**No Impact.** The project involves the installation of a soil cover and construction of drainage improvements within the project site. The project would not exacerbate wildfire risks because the project site is not located within a high or very high wildfire hazard zone. Construction equipment would be stored away from vegetation that could provide fire fuel if ignited. In addition, vegetation would be removed or trimmed on the project site, as needed, to ensure that construction activities do not increase risks associated with wildfires. Thus, the project would not affect the potential for wildfires to ignite or spread within areas surrounding the project site. There would be **no impact**, and no mitigation is required.

### 3.21 Mandatory Findings of Significance

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XXI. Mandatory Findings of Significance.</b>				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 3.21.1 Discussion

- a) **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?**

**Less than Significant with Mitigation Incorporated.** As discussed in Section 3.4, "Biological Resources," of this IS/MND, ground disturbance associated with the project would occur within previously disturbed land, and as explained in Section 3.4, "Biological Resources," no special-status plants are expected to occur on the site. Therefore, the project would have no impact on special-status plant species. The project has potential to adversely affect valley elderberry longhorn beetle, Swainson's hawk, white-tailed kite, and other nesting birds. Potentially significant impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures 3.4-1 and 3.4-2.

As discussed in Section 3.5, “Cultural Resources,” a historic-period archaeological site was discovered during the pedestrian survey. While this resource was not evaluated and may be eligible for the California Register of Historical Resources, intact, undisturbed deposits are located between 3 and 18 feet below ground surface. Ground-disturbing activity for the project site will extend 1 to 5 feet below ground surface and therefore would not affect the archaeological site. However, the project site has a high sensitivity for buried historic era archaeological resources. As such, it is possible that archaeological materials could be encountered during ground disturbing activities. Mitigation Measure 3.5-1 would reduce potential impacts to archaeological resources discovered during project construction activities to a **less-than-significant** level by requiring construction monitoring and, in the case of a discovery, preservation options (including data recovery, mapping, capping, or avoidance) and proper curation if significant artifacts are recovered.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)**

**Less than Significant with Mitigation Incorporated.** Project impacts would be individually limited and not cumulatively considerable due to the site-specific nature of the potential impacts. The potentially significant impacts to biological resources and cultural resources can be reduced to a less-than-significant level with implementation of recommended mitigation measures. These impacts would primarily be related to construction activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics.

Potentially significant biological resources impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures 3.4-1 and 3.4-2. Potentially significant cultural resources impacts would be reduced to less-than-significant levels with implementation of Mitigation Measures 3.5-1 and 3.5-2. Potentially significant hazard and hazardous materials impacts would be reduced to a less-than-significant level with implementation of 3.9-1. Potentially significant tribal cultural resources impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures 3.18-1 and 3.18-2.

The project would have no impact or less than significant impacts to the following environmental areas: aesthetics, agriculture and forestry resources, air quality, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire. Therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document. Implementation of these measures would

ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project implementation. Therefore, this impact would be ***less than significant***.

**c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?**

**Less than Significant with Mitigation Incorporated.** The project would have potentially significant impacts related to biological resources, cultural resources, hazards and hazardous materials, and tribal cultural resources. However, all of these impacts would be reduced to less-than-significant levels with incorporation of the mitigation measures included in the respective section discussions above. No other direct or indirect impacts on human beings were identified in this IS/MND. Therefore, this impact would be ***less than significant***.



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## 4.0 ENVIRONMENTAL JUSTICE EVALUATION

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### 4.1 Introduction

At present, there are no direct references to the evaluation of environmental justice (EJ) as an environmental topic in the Appendix G Environmental Checklist, CEQA statute, or State CEQA Guidelines; however, requirements to evaluate inconsistencies with general, regional, or specific plans (State CEQA Guidelines Section 15125[d]) and determine whether there is a “conflict” with a “policy” “adopted for the purpose of avoiding or mitigating an environmental effect” (Environmental Checklist Section XI[b]) can implicate EJ policies. As additional cities and counties comply with Senate Bill (SB) 1000 (2016), which requires local jurisdictions to adopt EJ policies when two or more general plan elements are amended, environmental protection policies connected to EJ will become more common.

“Environmental Justice” is defined in California law as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code Section 30107.3[a]). “Fair treatment” can be defined as a condition under which “no group of people, including racial, ethnic, or socioeconomic group, shall bear a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies” (EPA 2011).

SMUD created the Sustainable Communities Initiative, which encompasses the framework of EJ, to help bring environmental equity and economic vitality to all communities in SMUD’s service area with special attention to historically underserved neighborhoods. The initiative focuses on the development of holistically sustainable neighborhoods through partnerships and collaboration. The goal of this effort is to ensure the advancement of prosperity 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. To support the initiative, SMUD teams are working internally and with community partners to improve equitable access to healthy neighborhood environments, energy efficiency programs and services, environmentally friendly transit modes (including electric vehicles), and energy-related workforce development and economic development prospects. To the extent these goals seek to avoid environmental impacts affecting vulnerable communities, the State CEQA Guidelines already require consideration of whether a proposed project may conflict with goals that support sustainable communities. The following analysis has been provided by SMUD, as a proactive evaluation in excess of CEQA requirements, to identify any localized existing conditions to which the project, as proposed, may worsen adverse conditions and negatively impact the local community and identifies the need for implementation of additional site or local considerations, where necessary. Environmental justice issues are being considered in this CEQA document to help

inform decision makers about whether the project supports SMUD's goal of helping to advance environmental justice and economic vitality to all communities in SMUD's service area with special attention to historically underserved neighborhoods.

## **4.2 Regulatory Context**

California legislation, state agency programs, and guidance have been issued in recent years that aim to more comprehensively address EJ issues, including SB 1000 (2016), SB 535 (2012) and Assembly Bill (AB) 1550 (2016), AB 617 (2017), the California Department of Justice Bureau of Environmental Justice, the California Communities Environmental Health Screening Tool (CalEnviroScreen), and the Governor's Office of Planning and Research's (OPR's) 2020 General Plan Guidelines, Environmental Justice Element. In particular, SB 1000 has provided an impetus to more broadly address EJ; coupled with the existing requirements of CEQA, it is now time to elevate the coverage of significant environmental impacts in the context of EJ in environmental documents. These other bills have also provided the necessary policy direction to address EJ under CEQA.

### **4.2.1 Senate Bill 1000**

SB 1000, which was enacted in 2016, amended California Government Code Section 65302 to require that general plans include an EJ element or EJ-related goals, policies, and objectives in other elements of general plans with respect to disadvantaged communities (DACs) beginning in 2018. The EJ policies are required when a city or county adopts or revises two or more general plan elements and the city or county contains a DAC. EJ-related policies must aim to reduce the disproportionate health risks in DACs, promote civic engagement in the public decision-making process, and prioritize improvements that address the needs of DACs (California Government Code Section 65302[h]). Policies should focus on improving the health and overall well-being of vulnerable and at-risk communities through reductions in pollution exposure, increased access to healthy foods and homes, improved air quality, and increased physical activity.

### **4.2.2 Senate Bill 535 and Assembly Bill 1550**

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is one of several strategies that California uses to reduce greenhouse gases (GHGs) that cause climate change. The state's portion of the cap-and-trade auction proceeds are deposited in the Greenhouse Gas Reduction Fund (GGRF) and used to further the objectives of AB 32. In 2012, the California Legislature passed SB 535 (de Leon), directing that 25 percent of the proceeds from the GGRF go to projects that provide a benefit to DACs. In 2016, the legislature passed AB 1550 (Gomez), which now requires that 25 percent of proceeds from the GGRF be spent on projects located in DACs. The law requires the investment plan to allocate (1) a minimum of 25 percent of the available moneys in the fund to projects located within and benefiting individuals living in DACs; (2) an additional minimum of 5 percent to

projects that benefit low-income households or to projects located within, and benefiting individuals living in, low-income communities located anywhere in the state; and (3) an additional minimum of 5 percent either to projects that benefit low-income households that are outside of, but within 0.5 mile of, DACs, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within 0.5 mile of, DACs.

#### **4.2.3 Assembly Bill 617**

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address nonvehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and toxic air contaminants. The bill requires the California Air Resources Board (CARB) to identify high-pollution areas and directs air districts to focus air quality improvement efforts through the adoption of community emission reduction programs in these identified areas. Currently, air districts review individual stationary sources and impose emissions limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring communitywide air quality assessment and emission reduction planning, called a community risk reduction plan in some jurisdictions. CARB has developed a statewide blueprint that outlines the process for identifying affected communities, statewide strategies to reduce emissions of criteria air pollutants and toxic air contaminants, and criteria for developing community emissions reduction programs and community air monitoring plans.

#### **4.2.4 California Department of Justice's Bureau of Environmental Justice**

In February 2018, California Attorney General Xavier Becerra announced the establishment of a Bureau of Environmental Justice within the Environmental Section at the California Department of Justice. The purpose of the bureau is to enforce environmental laws, including CEQA, to protect communities disproportionately burdened by pollution and contamination. The bureau accomplishes this through oversight and investigation and by using the law enforcement powers of the Attorney General's Office to identify and pursue matters affecting vulnerable communities.

In 2012, then Attorney General Kamala Harris published a fact sheet titled, "Environmental Justice at the Local and Regional Level," highlighting existing provisions in the California Government Code and CEQA principles that provide for the consideration of EJ in local planning efforts and CEQA. Attorney General Becerra cites the fact sheet on his web page, indicating its continued relevance.

#### **4.2.5 California Communities Environmental Health Screening Tool**

CalEnviroScreen is a mapping tool developed by the Office of Environmental Health Hazards Assessment to help identify low-income census tracts in California that are

disproportionately burdened by and vulnerable to multiple sources of pollution. It uses environmental, health, and socioeconomic information based on data sets available from state and federal government sources to produce scores for every census tract in the state. Scores are generated using 20 statewide indicators that fall into four categories: exposures, environmental effects, sensitive populations, and socioeconomic factors. The exposures and environmental effects categories characterize the pollution burden that a community faces, whereas the sensitive populations and socioeconomic factors categories define population characteristics.

CalEnviroScreen prioritizes census tracts based on their combined pollution burden and population characteristics score, from low to high. A percentile for the overall score is then calculated from the ordered values. The California Environmental Protection Agency has designated the top 25 percent of highest scoring tracts in CalEnviroScreen (i.e., those that fall in or above the 75th percentile) as DACs, which are targeted for investment proceeds under SB 535, the state's cap-and-trade program.

#### **4.2.6 Governor's Office of Planning and Research's 2020 Updated EJ Element Guidelines**

OPR published updated General Plan Guidelines in June 2020 that include revised EJ guidance in response to SB 1000. OPR has also published example policy language in an appendix document along with several case studies to highlight EJ-related policies and initiatives that can be considered by other jurisdictions. Section 4.8 of the General Plan Guidelines contains the EJ guidance. The guidelines offer recommendations for identifying vulnerable communities and reducing pollution exposure related to health conditions, air quality, project siting, water quality, and land use compatibility related to industrial and large-scale agricultural operations, childcare facilities, and schools, among other things. It provides many useful resources, including links to research, tools, reports, and sample general plans.

### **4.3 Sensitivity of Project Location**

#### **4.3.1 Community Description**

As part of its Sustainable Communities Initiative, SMUD created and maintains the Sustainable Communities Resource Priorities Map,<sup>1</sup> which reflects several data sets related to community attributes that SMUD uses to identify historically underserved communities. One of the key components of the map is the California Communities Environmental Health Screening Tool (CalEnviroScreen Version 3.0), which identifies communities facing socioeconomic disadvantages or health disadvantages such as multiple sources of pollution. The Sustainable Communities Resource Priorities map provides an analysis of current data sets to indicate areas ranging from low to high sensitivity and can be used to describe the relevant socioeconomic characteristics and

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<sup>1</sup> The Sustainable Communities Resource Priorities Map is available at [https://usage.smud.org/SustainableCommunities/?\\_ga=2.223364443.1927542179.1598288052-1197903775.1589235097](https://usage.smud.org/SustainableCommunities/?_ga=2.223364443.1927542179.1598288052-1197903775.1589235097).

current environmental burdens of the project area can be described. SMUD has determined that it will evaluate EJ effects for projects located in, adjacent to, or proximate to (e.g., within 500 feet of) a high-sensitivity area as shown on the Sustainable Communities Resource Priorities Map or located in a census tract with a CalEnviroScreen score of 71% or greater.

The proposed project is located in a high sensitivity area per the Sustainable Communities Resource Priorities Map (SMUD 2020). The project area is a high sensitivity area because the project area was designated as an Opportunity Zone, a Sacramento Promise Zone, and as a Disadvantaged Communities by state Senate Bill 535, which are used as tools for targeting economic development, designated by the Healthy Sacramento Coalition as an area with consistent high rates of poor health outcomes, and designated as located in an area with a population that is highly vulnerable and susceptible to harm from exposure to a hazard, and its ability to prepare for, respond to, and recover from hazards.

The proposed project is located in a census tract with a CalEnviroScreen score of 91% or greater, which indicates the area is confronted with many burdens and vulnerabilities from environmental pollutants. The high CalEnviroScreen score is driven by environmental conditions such as multiple potential exposures to pollutants and adverse environmental conditions caused by pollution, and high health and socioeconomic vulnerability to pollution. The pollution burden of the census tract is from a high concentration of groundwater and soil cleanup sites and solid waste facilities, including the project site. The population characteristics of the census tract that contribute to a community's pollution burden and vulnerability include low birth weight, poverty and unemployment.

#### **4.4 Environmental Conditions**

This discussion references the analysis conducted in the Environmental Checklist of the IS/MND and provides additional detail with respect to the current environmental conditions in the project area. Within CalEnviroScreen, the census tract associated with the project site's score is largely driven by the identification (within CalEnviroScreen) of the North City substation and the presence of the former landfill at the project site. Additionally, the American River, located to the north of the project site, is listed as an impaired water body. The focus of this discussion is on environmental justice issues relevant to the project.

- **Aesthetics:** The visual characteristics of the project site and adjacent uses are largely vacant but previously disturbed land with some industrial land uses to the west and east. The site is publicly visible from the American River levee but is not visible from nearby roadways or residences.
- **Air Quality:** The project site is located in an area adjacent to an existing rail line and is located on former disposal sites. Nearby industrial uses can also contribute toxic air contaminants to the area during operation. Nearby receptors

are located approximately 780 feet from the edge project site, either across the American River or to the south of the existing rail line. The nearby receptors are located at lower elevation than the project site.

- **Cultural Resources and Tribal Cultural Resources:** There are no known cultural resources or tribal cultural resources on the project site.
- **Energy:** Communities near the project area have access to electric vehicles through a local car share, and the portion of the project area to the south of the site within the “home zone” where those vehicles may be parked. The project area is served by SMUD, which offers the Greenenergy program, which offers electricity generated with 100 percent renewable and carbon-free resources.
- **Greenhouse Gas Emissions and Climate Change Vulnerabilities:** The project area is in an area that would likely be subject to increased heat stress from climate change. Although the project area is not in a 100-year flood zone, maximum flood depth maps indicate the area may be inundated under certain levee breach scenarios (Sacramento County 2015). Furthermore, climate change can exacerbate any issues with levees (Romero 2020).
- **Hazards and Hazardous Materials:** There are no active hazardous materials sites adjacent to the project site. As discussed in Section 3.9, Hazardous and Hazardous Materials, above, the site contains soil contaminated with metals, petroleum hydrocarbons, and semi-volatile organic compounds were at the surface of the NCLF site; and dieldrin and arsenic exceeding environmental screening levels were found approximately 1.5 feet below ground surface within the Lot 31 parcel. PCBs and dioxins/furans were also found on site, but in concentrations below environmental screening levels. Existing industrial operations in the vicinity of the project site are conducted in accordance with applicable regulations related to on-site operations and transport and storage of materials.
- **Noise:** Noise sources in the project area include vehicle and rail traffic, as well as noise associated with nearby industrial operations. No sensitive receptors (i.e., residences) are located approximately 780 feet from the edge of the project site. Due to the distance between the construction activities to the sensitive receptor, and the relative elevation difference (the project site is located at a higher elevation), noise would be expected to dissipate and not substantially affect nearby residents.
- **Public Services:** Public services such as police and fire protection are available in the area.
- **Recreation:** The nearest park is about 0.3 mile from the project site.



- **Transportation:** The project site is largely inaccessible with no paved roads or bicycle facilities or directly accessible public transit access points (e.g., light rail, bus, and train).
- **Utilities:** Due to the lack of development at the project site, no utility connections are provided on-site or within the adjacent properties to the east. The remainder of the project area is served by SMUD for electricity and by the City for storm drains and sewers.

#### 4.5 Evaluation of the Project's Contribution to a Community's Sensitivity

As noted previously, the project would involve the recontouring and closure of NCLF and Lot 31. The project's contributions to the community's sensitivity are as follows:

- **Aesthetics:** There would be temporary and minor modification of views in the project area during construction activities due to presence of construction equipment, which is common in urban areas. The project may increase the aesthetic setting of the area because it would involve the permanent closure of the former landfill sites and allow for the potential use of the site as a recreational amenity by the City in the future, as noted in Chapter 2, "Project Description."
- **Air Quality:** Some excavation and grading would be required during recontouring and the placement of additional soil material at the project site. This would result in emissions of diesel particulate matter and fugitive dust at the project site, as discussed in Section 3.3., Air Quality, criterion (c). Considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated at any single place during project construction, and the relatively short period during which diesel-PM-emitting construction activities would take place, construction-related TACs would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million. As discussed in Chapter 2, soil stabilization and dust suppression activities would be used as part of the WPCP and would satisfy the requirements of Fugitive Dust Rule 403, set forth by SMAQMD, which would minimize emissions of PM<sub>10</sub> and PM<sub>2.5</sub>. These measures would be consistent with the best management practices and best available control technology practices required by SMAQMD.
- **Cultural Resources and Tribal Cultural Resources:** The project would not affect known cultural resources or tribal cultural resources.
- **Energy:** The project would not affect access to electricity or electric vehicles because it would not preclude access to car shares, and electrical service would be maintained throughout construction.



- **Greenhouse Gas Emissions and Climate Change Vulnerabilities:** The project would not worsen the area's flooding vulnerabilities because it would not affect the area's topography or levee system.
- **Hazards and Hazardous Materials:** The use and handling of hazardous materials during construction would be conducted in a manner consistent with existing regulations, including CCR Title 27. In addition, a SSHSP would be implemented during construction activities, which would reduce the potential for construction worker, and by consequence the surrounding communities, from exposure to hazardous materials. Upon completion of construction, no on-site operations would involve the use, transport, or disposal of potential hazardous materials. The perimeter landfill gas wells will continue to be monitored during post-closure activities to ensure methane levels at the property boundary are in compliance with state requirements for subsurface combustible gas migration control.
- **Noise:** Noise would be generated during construction, but it would be temporary, conducted in compliance with the City of Sacramento Noise Ordinance, and similar to other construction type noise that occurs in downtown Sacramento. No substantial increases in ambient noise levels at sensitive receptors in the area would occur.
- **Public Services:** As the project site is undeveloped, the project would not interrupt or otherwise affect the provision of public services to the area.
- **Recreation:** The project would not affect any parks or recreational opportunities. Future use of the site may potentially include recreation, pending deeding of the land to the City, and other utility improvements. Please note that details and funding related to these actions are unknown at this time, cannot be known at the time of release of this document, and when they are undertaken would constitute separate efforts from the project (i.e., would be analyzed as separate project under CEQA).
- **Transportation:** The project site would not affect public transit access points or bike lanes.
- **Utilities:** The project would not adversely affect provision of utilities. The existing transmission towers at the site would be maintained, and no interruption or reduction in service capacity would occur as a result of the project.

As described for each environmental resource area, the project would not contribute to the community's current sensitivity.

## 4.6 Summary of Environmental Justice Assessment

Per SMUD's Sustainable Communities Resource Priorities Map,<sup>2</sup> which reflects several data sets related to community attributes that SMUD uses to identify historically underserved communities, the project site is located in a high sensitivity area (SMUD 2020), due in part to the project area's designation as an Opportunity Zone, a Sacramento Promise Zone, and as a Disadvantaged Communities by state Senate Bill 535. However, the project involves the improvement and long-term closure of a former landfill sites. Objectives of the project include remediating the NCLF and Lot 31 to be in compliance with current requirements and regulations, which are designed to ensure that construction-related and post-closure activities associated with the project site would not pose a threat to human health and the environment, to minimize potential impacts to sensitive receptors, public health and the environment by reducing infiltration and improving storm water runoff quality from the site and reducing the chance for direct contact with solid waste and waste constituents. The project will reduce potential impacts on the community by minimizing the potential for release of hazardous materials into the environment and providing a benefit to public health. As a result, the project does not have the potential to further affect the community and/or worsen existing adverse environmental conditions. Further, upon final closure of the NCLF and pending deeding of the land to the City the NLCF could repurpose the site for recreational and beneficial use to the community. Therefore, ***no existing environmental justice conditions would be worsened*** as a result of the project.

Although the project would not worsen existing environmental justice conditions, as a leader in building healthy communities, one of SMUD's Sustainable Communities goals is to help bring environmental equity and economic vitality to all communities. By investing in underserved neighborhoods and working with community partners, SMUD is part of a larger regional mission to deliver energy, health, housing, transportation, education and economic development solutions to support sustainable communities. Sustainable Communities currently has two partnerships in the project area:

- Sierra Nevada Journeys: With an investment from SMUD's Sustainable Communities, Sierra Nevada Journeys is conducting a community needs assessment in order to develop cultural relevant education materials. This information will be shared with SMUD/other local partners and will be used to develop curriculum that is pertinent to historically marginalized communities as well as inclusive of Black, Indigenous, and People of Color. The new curriculum will be deployed through Sierra Nevada Journeys' Classroom Unleashed Program.

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<sup>2</sup> The Sustainable Communities Resource Priorities Map is available at [https://usage.smud.org/SustainableCommunities/?\\_ga=2.223364443.1927542179.1598288052-1197903775.1589235097](https://usage.smud.org/SustainableCommunities/?_ga=2.223364443.1927542179.1598288052-1197903775.1589235097).

- The mission of Sierra Nevada Journeys is to deliver innovative outdoor, science-based education programs for youth to develop critical thinking skills and to inspire natural resource stewardship. More than 50 percent of the students they serve are from low-income families and 61 percent are students of color, working with Title 1 schools in the area. In addition, Sierra Nevada Journeys strong working relationships with local Tribes.
- Sacramento Native American Health Center(s): The Sacramento Native American Health Center Inc. (SNAHC) is a non-profit, Federally Qualified Health Center, located in Midtown Sacramento. The health center is committed to enhancing quality of life by providing a culturally competent, holistic, and patient-centered continuum of care. There are no tribal or ethnic requirements to receive care here.
- SNAHC is community-owned and operated; a Board of Directors governs the center. Since the grand opening the center staff has grown to meet the needs of the community, 26 percent are Native American from both local and out-of-state Tribes.

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## 6.0 REFERENCES

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### Chapter 1, “Introduction”

No sources are cited in this section.

### Chapter 2, “Project Description”

Brown and Caldwell. 2015. *Site Investigation Results Report. North City Substation Property*. Sacramento California. Prepared for SMUD.

Kleinfelder. 2011. Field Investigation Report. Blue Diamond Property. Sacramento, California.

Sacramento Municipal Utility District. 2014. Substation E Substation Initial Study/Mitigated Negative Declaration.

SMUD. See Sacramento Municipal Utility District.

### Section 3.1, “Aesthetics”

California Department of Transportation. 2020. *Officially Designated County Scenic Highways*. Available: <https://dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf>. Accessed: October 2020.

Caltrans. See California Department of Transportation.

### Section 3.2, “Agriculture and Forestry Resources”

California Department of Conservation. 2018. California Important Farmland Finder. Accessed September 11, 2020.

City of Sacramento. 2019. Planning and Development Code. Available: [https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Maps/Sacramento\\_Zoning\\_Cv10/Sacramento\\_Zoning\\_17X22.pdf?la=en](https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Maps/Sacramento_Zoning_Cv10/Sacramento_Zoning_17X22.pdf?la=en). Accessed: October 2020.

DOC. See California Department of Conservation.

Sacramento County. 2020. Sacramento County GIS Open Data Site. Available: [https://data.saccounty.net/datasets/199810930ef9465a9a1ae0315e5a7535\\_0](https://data.saccounty.net/datasets/199810930ef9465a9a1ae0315e5a7535_0). Accessed: October 2020.

### Section 3.3, “Air Quality”

California Air Resources Board. 2019. Maps of State and Federal Area Designations. Available: <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations#:~:text=CARB%20makes%20State%20area%20designations,sulfide%2C%20and%20visibility%20reducing%20particles>. Accessed: October 7, 2020.

CARB. See California Air Resources Board.

EPA. See U.S. Environmental Protection Agency.

Miller, Joseph P.E., and Wendell Minshew, P.E. 2020 (April 21). *SMUD North City Landfill Closure. Evaluation of Landfill Gas Generation and Migration Potential Review Draft*. Letter memorandum to Sarah Cheney, P.E., SMUD North City Landfill Closure Project Manager. Sacramento, CA.

U.S. Environmental Protection Agency. 2018. Criteria Air Pollutants. Available: <https://www.epa.gov/criteria-air-pollutants>. Accessed: October 7, 2020.

### Section 3.4, “Biological Resources”

California Department of Fish and Wildlife. 2005. *California Wildlife Habitat Relationship System*. California Interagency Wildlife Task Group.

California Natural Diversity Database. 2020. California Natural Diversity Database. 2020. BIOS selection. Accessed August 2020.

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available: <http://www.rareplants.cnps.org>. Accessed August 2020.

CDFW. See California Department of Fish and Wildlife.

CNDDDB. See California Natural Diversity Database.

CNPS. See California Native Plant Society.

Dunk, Jeffrey R. 1995. White-Tailed Kite. *The Birds of North America*. No. 170.

England, A. Sidney, James A Estep, and Waldo R. Holt. 1995. Nest-Site Selection and Reproductive Performance of Urban-Nesting Swainson’s Hawks in the Central Valley of California. *Journal of Raptor Research*. Volume 29(3): 179-186.

England, A. Sidney, Marc J Bechard, and Stuart Houstin. 1997. Swainson’s Hawk. *The Birds of North America*. No 265, 1997.



- Erichsen, A. L., N.D. Ottum, and D.M. Fry. 1994. The white-tailed kite: GIS analysis of habitat selection in the Sacramento Valley, California with implications for conservation of wildlife in agricultural landscapes.
- Estep, James A. 1989. *Biology, Movement, and Habitat Relationships of the Swainson's Hawk in the Central Valley of California*. State of California Department of Fish and Game.
- . 2009 (January). *The Distribution, Abundance, and Habitat Associations of the Swainson's Hawk (Buteo Swainsoni) in the City of Elk Grove, California*. Prepared for the City of Elk Grove.
- Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*.
- U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*.
- . 2020a (August 20). List of Threatened and Endangered Species that may occur in your Proposed Project Location, and/or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2020-SLI-2680.
- . 2020b. National Wetlands Inventory. Accessed: September 2020.
- USFWS. See U.S. Fish and Wildlife Service.

### **Section 3.5, "Cultural Resources"**

- ICF. 2020 (December). *Cultural Resources Inventory Report for the North City Landfill Project, Sacramento County, California*. December. Sacramento, CA. Prepared for the Sacramento Municipal Utility District, Sacramento, CA.

### **Section 3.6, "Energy"**

- California Energy Commission. 2020. California Gasoline Data, Facts, and Statistics. Available: [https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics#:~:text=In%202015%2C%2015.1%20billion%20gallons,Board\)%20and%2010%20percent%20ethanol](https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics#:~:text=In%202015%2C%2015.1%20billion%20gallons,Board)%20and%2010%20percent%20ethanol). Accessed October 12, 2020.
- California Public Utilities Commission. 2019. California Renewables Portfolio Standard Annual Report. Available: [https://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/Utilities\\_and\\_Industries/Energy\\_-\\_Electricity\\_and\\_Natural\\_Gas/2019%20RPS%20Annual%20Report.pdf](https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/2019%20RPS%20Annual%20Report.pdf). Accessed October 12, 2020.

\_\_\_\_\_. 2020. Natural Gas and California. Available:  
[https://www.cpuc.ca.gov/natural\\_gas/#:~:text=California's%20natural%20gas%20utilities%20provide%20service%20to%20over%2011%20million%20gas%20meters.&text=Although%20very%20small%20in%20number,core%20customers%20consume%20about%2035%25](https://www.cpuc.ca.gov/natural_gas/#:~:text=California's%20natural%20gas%20utilities%20provide%20service%20to%20over%2011%20million%20gas%20meters.&text=Although%20very%20small%20in%20number,core%20customers%20consume%20about%2035%25). Accessed October 12, 2020.

CEC. See California Energy Commission.

CPUC. See California Public Utilities Commission.

EIA. See U.S. Energy Information Administration.

U.S. Energy Information Administration. 2019. Investor-Owned Utilities Served 72% of U.S. Electricity Customers in 2017. Available:  
<https://www.eia.gov/todayinenergy/detail.php?id=40913#:~:text=The%20two%20largest%20IOUs%20are,%2C%20and%20municipal%20drun%20utilities>. Accessed October 12, 2020.

\_\_\_\_\_. 2020. California State Profile and Energy Estimates. Available:  
<https://www.eia.gov/state/analysis.php?sid=CA#:~:text=California%20is%20the%20largest%20consumer,used%20in%20the%20transportation%20sector>. Accessed October 12, 2020.

### **Section 3.7, “Geology and Soils”**

Brown and Caldwell. 2015. *Site Investigation Results Report. North City Substation Property*. Sacramento California. Prepared for SMUD.

California Department of Conservation, California Geological Survey. 2016. *Earthquake Shaking Potential for California*. Available:  
[https://www.conservation.ca.gov/cgs/Documents/MS\\_48.pdf](https://www.conservation.ca.gov/cgs/Documents/MS_48.pdf). Accessed October 2020.

Hargis +Associates. 2020. *Groundwater Monitoring Report First Quarter 2020. North City Landfill. North B Street and 20<sup>th</sup> Street. Sacramento, CA*.

Jennings, C. W. (1994), Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, California Department of Conservation, Division of Mines and Geology.

Kleinfelder. 2011. *Field Investigation Report. Blue Diamond Property*. Sacramento, California.

NRCS. See US Department of Agriculture, Natural Resources Conservation Service.

Natural Resources Conservation Service. 2020. *Web Soil Survey National Cooperative Soil Survey*. Available:  
<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed November 2020.

Society of Vertebrate Paleontology. 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Available:  
[http://vertpaleo.org/Membership/Member-Ethics/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx). Accessed October 2020.

SVP. See Society of Vertebrate Paleontology.

### **Section 3.8, “Greenhouse Gas Emissions”**

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis*. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available:  
[https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5\\_Chapter06\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter06_FINAL.pdf). Accessed October 9, 2020.

———. 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*. Available: [https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_SPM.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf). Accessed October 9, 2020.

Sacramento Metropolitan Air Quality Management District. 2020 (April). SMAQMD Thresholds of Significance Table. Available:  
<http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools>. Accessed October 9, 2020.

SMAQMD. See Sacramento Metropolitan Air Quality Management District.

### **Section 3.9, “Hazards and Hazardous Materials”**

California Department of Forestry and Fire. 2020. FHSZ Viewer. Available:  
<https://egis.fire.ca.gov/FHSZ/>. Accessed: October 2020.

California Department of Toxic Substances Control. EnviroStor Database. Available:  
<https://dtsc.ca.gov/your-envirostor/>. Accessed: October 2020.

City of Sacramento. 2005 (April). *City of Sacramento, CA Emergency Operations Plan*. Available: [http://www.sacramentoready.org/Documents/sac\\_018942.pdf](http://www.sacramentoready.org/Documents/sac_018942.pdf)

DTSC. See California Department of Toxic Substances Control.

Kleinfelder. 2011. *Field Investigation Report. Blue Diamond Property*. Sacramento, California.

Miller, Joseph P.E., and Wendell Minshew, P.E. 2020 (April 21). *SMUD North City Landfill Closure. Evaluation of Landfill Gas Generation and Migration Potential Review Draft*. Letter memorandum to Sarah Cheney, P.E., SMUD North City Landfill Closure Project Manager. Sacramento, CA.

State Water Resources Control Board. 2020. Geo Tracker. Available: <https://geotracker.waterboards.ca.gov/>. Accessed: October 2020.

SWRCB. See State Water Resources Control Board.

### **Section 3.10, “Hydrology and Water Quality”**

Brown and Caldwell. 2015. *Site Investigation Results Report. North City Substation Property*. Sacramento California. Prepared for SMUD.

California Department of Water Resources. 2020. SGMA Basin Prioritization Dashboard. Accessed: October 2020.

DWR. See California Department of Water Resources.

Federal Emergency Management Agency. 2015. National Flood Hazard Layer. Panel 0180J Effective June 16, 2015. Available: <http://www.msc.fema.gov>.

Hargis +Associates. 2020. *Groundwater Monitoring Report First Quarter 2020. North City Landfill. North B Street and 20<sup>th</sup> Street. Sacramento, CA*.

### **Section 3.11, “Land Use and Planning”**

No sources are cited in this section.

### **Section 3.12, “Mineral Resources”**

Dupras, D. L. 1988. Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production. Consumption Region.

Sacramento County. 2010. *Final Environmental Impact Report Volume II, Sacramento County General Plan Update*.

### **Section 3.13, “Noise”**

California Department of Transportation. 2013. (September). *Technical Noise Supplement*. California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes.

Caltrans. See California Department of Transportation.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment>. Accessed July 3, 2017.

———. 2018. *Transit Noise and Vibration Impact Assessment Manual*. U.S Department of Transportation. Prepared by John A Volpe, National Transportation Systems Center.

FTA. See Federal Transit Administration.

City of San Marcos. 2011. Appendix D: Noise Assessment for the University District Rock Crusher Conditional Use Permit. Prepared by LDN Consulting Inc.

### **Section 3.14, “Population and Housing”**

No sources are cited in this section.

### **Section 3.15, “Public Services”**

Sacramento Fire Department. 2019. Engine Company First-In Districts and Response Zones - BARB Configuration. Available: <https://www.cityofsacramento.org/-/media/Corporate/Files/Fire/Maps/Engine-Districts-20120423.pdf?la=en>. Accessed September 21, 2020.

Sacramento Police Department. 2016. *Sacramento Police Department 2016 Annual Report*. Available: <https://www.cityofsacramento.org/-/media/Corporate/Files/Police/About-SPD/Annual-Reports/ar16.pdf?la=en>. Accessed September 24, 2020.

SFD. See Sacramento Fire Department.

SPD. See Sacramento Police Department.

### **Section 3.16, “Recreation”**

No sources are cited in this section.

### **Section 3.17, “Transportation”**

No sources are cited in this section.

### **Section 3.18, “Tribal Cultural Resources”**

No sources are cited in this section.

### **Section 3.19, “Utilities and Service Systems”**

No sources are cited in this section.

### **Section 3.20, “Wildfire”**

CAL FIRE. See California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2008 (July 30). Sacramento County, Very High Fire Hazard Severity Zones in LRA. 1:100,000 Scale. Sacramento, CA.

City of Sacramento. 2015 (March 3). *Sacramento 2035 General Plan Background Report*. Adopted March 3, 2015.

### **Section 3.21, “Mandatory Findings of Significance”**

No sources are cited in this section.

## **Chapter 4, “Environmental Justice Evaluation”**

EPA. See U.S. Environmental Protection Agency.

Romero, Ezra David. “Could Sacramento Flood Like New Orleans? It’s possible, But Water Managers Are Trying To Make It Less Likely.” *CapRadio*.  
<https://www.caprado.org/articles/2020/01/21/could-sacramento-flood-like-new-orleans-its-possible-but-water-managers-are-trying-to-make-it-less-likely/>. Accessed January 2021.

Sacramento County. 2015. Storm Ready: American River South Flood Maps. Available at <https://waterresources.saccounty.net/stormready/Pages/American-River-South-Flood-Maps.aspx>. Accessed September 4, 2020.

Sacramento Municipal Utility District. 2020. Sustainable Communities Resource Priorities Map. Available:  
[https://usage.smud.org/SustainableCommunities/?\\_ga=2.56450731.1470289330.1602260466-1c965eb829e0a76be61bbfcd2ac34f63](https://usage.smud.org/SustainableCommunities/?_ga=2.56450731.1470289330.1602260466-1c965eb829e0a76be61bbfcd2ac34f63). Accessed October 9, 2020.

SMUD. See Sacramento Municipal Utility District.

U.S. Environmental Protection Agency. 2011 (September). *Plan EJ 2014*. Available:  
<https://nepis.epa.gov/Exe/ZyPDF.cgi/P100DFCQ.PDF?Dockkey=P100DFCQ.PDF>. Accessed August 24, 2020.

**RESOLUTION NO. \_\_\_\_\_**

**WHEREAS**, this Board has adopted policies stating this Board is committed to meeting customers' electrical energy needs (SD-4); demonstrating energy reliability and environmental leadership (SD-7); and ensuring high levels of customer satisfaction (SD-5); and

**WHEREAS**, SMUD's primary purpose is to supply electrical energy to customers in the Sacramento area; and

**WHEREAS**, the **North City Landfill Closure Project (Project)** consists of remediation, including installation of a soil cover and drainage improvements, of the approximately 12-acre **North City Landfill disposal site (NCLF, Site)** owned by SMUD and the approximately 1.5-acre **City of Sacramento Lot 31 disposal site (Lot 31)**, which are located near Sutter's Landing Regional Park; and

**WHEREAS**, previous to SMUD's purchase of the **Site** in 1950, it was used as a landfill disposal site by the **City of Sacramento** at which burning of municipal waste occurred; and

**WHEREAS**, **NCLF** has approximately 20 feet of burned or partially burned municipal waste overlayed by approximately 11 feet of inert construction and demolition debris, some of the latter of which was placed by SMUD; and

**WHEREAS**, **Lot 31**, previously owned by Blue Diamond Growers property, is reported to include a minor amount of fill with construction and demolition debris; and

**WHEREAS**, the **Project** will consist of six main components: i) clearing and grubbing, ii) concrete demolition, iii) rough site grading, iv) soil cover placement, v) drainage improvements, and vi) post-remediation monitoring and maintenance; and



**WHEREAS**, upon completion, a two-foot thick minimum soil cover with a minimum slope of two percent will cover the **Site** and **Lot 31** to isolate waste and provide rainfall drainage off the **Site**, in compliance with requirements established by the **California Department of Resources and Recycling and Recovery (CalRecycle)** and California Code of Regulations Title 27 solid waste regulations (regulated by the **Sacramento County Environmental Management Department (EMD)** as the Local Enforcement Agency in Sacramento County); and

**WHEREAS**, the **IS/MND** included an environmental justice evaluation in excess of **CEQA** requirements to help inform decision makers determine whether the **Project** supports SMUD's goal of helping to advance environmental justice and economic vitality to all communities in SMUD's service territory with special attention to historically underserved neighborhoods, which concluded no existing environmental justice conditions would be worsened as a result of the **Project**; and

**WHEREAS**, the draft **IS/MND** and **Mitigation Monitoring and Reporting Program** were distributed to members of the Board, interested persons, organizations, public agencies, landowners and occupants of parcels adjacent to the **Site**, and notice published in the *Sacramento Bee*, inviting public comment; the comment period was open from January 21, 2021, through February 22, 2021; a virtual public meeting was held on February 4, 2021, which was attended by one member of the public, and four public comments were received; and

**WHEREAS**, comments received during the public review period have been responded to as appropriate and clarifying revisions were incorporated into the **IS/MND** and **Mitigation Monitoring and Reporting Program**; and

**WHEREAS**, in 2020, SMUD and the **City of Sacramento** entered into an agreement allowing SMUD to use **Lot 31** for construction of drainage improvements, in exchange for SMUD's construction of a two-foot thick soil cover over portions of **Lot 31**; and

**WHEREAS**, also as a part of the 2020 agreement, SMUD will deed the **Site** to the **City of Sacramento** once State minimum standards are met for the landfill soil cover, with the **City of Sacramento** assuming all post-remediation monitoring and maintenance at its cost; and

**WHEREAS**, future use of the **Site** was not analyzed in SMUD's **CEQA** document and would be analyzed as a separate project under **CEQA** by the **City of Sacramento** or other appropriate lead agency; and

**WHEREAS**, the **IS/MND** and **Mitigation Monitoring and Reporting Program** are located in the records of SMUD under the custody of the Environmental Services Department; **NOW THEREFORE**,

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

**Section 1.** This Board has reviewed and considered information in the **Initial Study and Mitigated Negative Declaration (IS/MND)** and **Mitigation Monitoring and Reporting Program**, together with comments received during the public review period; finds that the **IS/MND** and **Mitigation Monitoring and Reporting Program** as set forth in **Attachment \_\_\_\_** hereto have been completed in compliance with the **California Environmental Quality Act (CEQA)**, the State Guidelines for implementation of **CEQA**, and Board Resolution No. 13-11-03 (Procedures for

Implementation of **CEQA**); and finds that the **IS/MND** and **Mitigation Monitoring and Reporting Program** reflect the independent judgment and analysis of this Board.

**Section 2.** This Board finds, on the basis of the **IS/MND** and **Mitigation Monitoring and Reporting Program**, and comments received during the public review period, that there is no substantial evidence that the **North City Landfill Closure Project (Project)** may have a significant effect on the environment.

**Section 3.** Based on the **IS/MND**, **Mitigation Monitoring and Reporting Program**, and the findings made by this Board, this Board adopts the **IS/MND** and **Mitigation Monitoring and Reporting Program** and approves the **Project**. 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**.