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SMUD Renewable Energy Resources Procurement Plan

June 2022



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Section 1: Introduction

The Sacramento Municipal Utility District (SMUD) is committed to the development and procurement of renewable energy for our customers. In order to grow renewable energy supplies for its customers, SMUD voluntarily created three separate programs: a green pricing program called “Greenenergy”, a shared solar program called “SolarShares”, and a Renewables Portfolio Standard (RPS) Program (prior to legislation mandating the program).

In 1997, SMUD began Greenenergy, which allows participating residential customers to select a 100% renewable product to serve 100% or 50% of their monthly electricity demand, respectively, in addition to their regular electricity bill. Commercial Greenenergy customers pay an additional amount per kWh of electricity usage to serve all or a portion of their monthly electricity demand using renewables, on top of their regular rates. Commercial Greenenergy customers can also purchase 1 MWh blocks of a 100% renewable product.

In 2008, SMUD launched a pilot program called SolarShares, which allowed customers to receive a portion of their electricity usage from an off-site solar system. Participants saw a SolarShares charge, and a credit associated with the solar generation. The initial 1 MW pilot was fully subscribed quickly. Since then the program has grown and now includes options for large commercial customers as well. In 2016, SMUD significantly expanded the SolarShares program by extending the SolarShares program to large commercial customers, signing agreements to deliver 150 MW. In 2020, SMUD added a new Neighborhood SolarShares option for new residential construction to meet the requirement of the updated building code standards.

These two voluntary programs result in SMUD customers engaging in renewable procurement beyond the current RPS mandates. State law (SB 350) recognizes this additional procurement by allowing electricity sales to these customers that are supported by specific renewable resources to be excluded from overall retail sales prior to calculating SMUD’s RPS obligation.

In 2001, SMUD established its initial RPS goals, and by 2008 had established goals of procuring 20% of its retail electricity sales from eligible renewable energy resources by 2010 and 33% by 2020 (SMUD’s RPS goals). In 2002 (and in later statutes modifying the initial law), the State of California established an RPS for retail sellers of 20% of retail sales served with electricity from eligible renewable energy resources by December 31, 2010. The RPS statutes at that time did not specifically obligate local publicly owned electric utilities (POUs) such as SMUD with percentage goals and deadlines, nor did the state law require POUs to satisfy state eligibility rules for renewable energy resources to count toward their RPS goals. Nevertheless, POUs were required to consider and implement an RPS that met the “intent of the Legislature”.

Senate Bill 2 in 2011 (SBX1-2) established an RPS goal of 33% by 2020 for POUs as well as retail sellers. SMUD achieved the 20% RPS in 2010, and 33% RPS in 2020

(pending verification from the California Energy Commission [CEC]) with resources meeting the state eligibility rules. Senate Bill 350 (SB 350, 2015) modified provision of the RPS and set a 2030 RPS target of 50%, which was further modified by Senate Bill 100 (SB 100, 2018) to establish a 60% RPS target by 2030 and a planning goal of serving 100% of retail sales with zero carbon and eligible renewable resources by 2045.

In July 2020, our Board of Directors declared a climate emergency and adopted a resolution directing SMUD to take significant and consequential actions to become carbon neutral (net zero carbon) by 2030. The Board also directed SMUD staff to report on clear, actionable and measurable strategies and plans to reach SMUD's climate emergency goals. In April 2021, SMUD's Board approved our *2030 Zero Carbon Plan (2030 ZCP)*. SMUD's goal to eliminate carbon emissions from our power supply by 2030 is more ambitious than already aggressive state mandates and identified procurement of renewable resources far beyond what is necessary to meet current RPS obligations through 2030. SMUD is on target to easily meet the 60% RPS target by 2030 and serve 100% retail sales with zero carbon and eligible renewable resources – SMUD's *2030 ZCP* achieves the 100% target fifteen years ahead of the State's planning goal date.

SMUD's RPS policy is stated in SMUD Board Strategic Direction (SD) 9. Previous version of our SD9 included the RPS goals of 20% by 2010 – our current SD9 includes RPS goals of 33% by 2020, 44% by 2024, 52% by 2027, 60% by 2030, and our *2030 ZCP* goal of being carbon free by 2030¹; it also sets policies for energy efficiency and electrification goals, clean distributed generation, and greenhouse gas reduction. Staff strives to reach the policy goals in SD9 in the most effective, efficient, and equitable way practicable. SMUD balances the multiple policies in SD9 with other Board policies including those established for high levels of reliability (SD4), competitive rates (SD2), access to capital markets (SD3), and the local environment (SD7). SMUD also undertakes research, development and demonstration (RD&D) activities (SD10) that contribute to the RPS and other SD9 goals. Balancing the achievement of SMUD's RPS and other policies involves an integrated resource planning (IRP) process.

As required by Public Utilities Code (PUC) § 399.30 (a), and by the *Enforcement Procedures for the Renewable Portfolio Standard for Local Publicly Owned Utilities (CEC RPS Regulations)*, Section 3205(a), SMUD adopted a Renewable Energy Resources Procurement Plan (Procurement Plan) in 2013 and updated that Procurement Plan 2019. Given the legislative changes to RPS requirements, SMUD's *2030 Zero Carbon Plan*, and the passage of time since the last plan adoption, SMUD is adopting a revised Procurement Plan – this document – describing how it will achieve its RPS procurement requirements for each compliance period established by law through 2030.

In accordance with requirements in the *RPS Regulations*, a copy of any adopted updates to this Procurement Plan shall be submitted to the CEC within 30 days of adoption.

¹ SMUD's SD9 goal was most recently revised in April 2021. This update, adoption of Resolution No. 21-04-04 updated the SD9 direction to align with the goal of 0 MT GHG emissions in our energy supply by 2030, put forth in *SMUD's 2030 Zero Carbon Plan*, the foundational document of our *2030 Zero Carbon Integrated Resource Plan (IRP)*.

In December 2011, SMUD’s Board approved SMUD’s RPS Enforcement and Compliance Plan (Enforcement Plan), pursuant to SBX1-2. In November 2013, SMUD’s Board adopted a revised Enforcement Plan to ensure compliance with the *CEC RPS Regulations*, and is adopting revisions concurrently with the adoption of this Procurement Plan. The Enforcement Plan confirms SMUD’s commitment to comply with the *CEC RPS Regulations*.

Section 2: Renewable Procurement and RPS Compliance

SMUD has met its RPS compliance obligations for the following compliance periods, per *CEC RPS Regulations*, Section 3204²:

- Compliance period 1 (2011 – 2013)
- Compliance period 2 (2014 – 2016)
- Compliance period 3 (2017 – 2020; pending CEC verification)

SMUD is also well under way to meeting the established targets for compliance period 4 (2021-2024). Table 1 illustrates the RPS compliance targets for 2021 through 2030, as provided in PUC § 399.30 (c)(2) and the *CEC RPS Regulations*, Section 3204(a).

Table 1: RPS Compliance Targets

	Compliance Period 4				Compliance Period 5			Compliance Period 6		
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RPS Target (% of Retail Sales)	35.75%	38.50%	41.25%	44.00%	46.00%	50.00%	52.00%	54.67%	57.33%	60.00%

Table 2 shows the expected procurement from contracted and planned eligible renewable contracts as well as owned resources that can be allocated and retired for SMUD’s RPS compliance. This estimate is based on SMUD’s load forecast used during development of our *2030 ZCP*. Note that this renewable energy procurement shows our estimated availability of resources but does not indicate that the associated Renewable Energy Certificates (RECs) will all be retired for the RPS. Most of these contracts reflect projects that are on-line and generating electricity, contracts that have been executed with an expected commercial online date, or expected contracts from an existing procurement process. The table excludes generation from resources that are allocated to meet SMUD’s Greenergy and SolarShares retail sales. For resources that may be used to serve multiple programs, any generation not used to meet RPS requirements is excluded from Table 2. The values in Table 2 incorporate all future resources identified in Appendix A.

SMUD expects to retire RECs from existing and planned resources to fully achieve compliance for compliance periods 5 and 6 (through 2027). SMUD plans to extend

² For historical compliance in the first and second compliance periods, see CEC reports on POU RPS compliance.

contracts and/or contract for new resources to achieve compliance in subsequent compliance periods (see Additional Resources Needed in Table 2). Table 2 shows a deficit (Additional Resources Needed) for compliance period 6, but the table does not reflect the additional 13,000 GWh identified in our 2030 ZCP as needed in order to meet our zero-carbon goal because we have not yet started the process to procure those resources.

Table 2: SMUD’s Renewable Resources and Compliance Requirements³

	Compliance Period 4 2021 - 2024	Compliance Period 5 2025 - 2027	Compliance Period 6 2028 - 2030
RPS Compliance Period Target (GWh)	15,063	13,927	17,023
Category 1 Minimum	75%	75%	75%
Category 3 Maximum	10%	10%	10%
Procurement by Technology (GWh)			
Biomass/Biogas /Biomethane	1,201 GWh	232 GWh	422 GWh
Geothermal	3,082 GWh	3,569 GWh	3,555 GWh
Solar	3,804 GWh	5,431 GWh	5,123 GWh
Wind	5,991 GWh	4,839 GWh	4,781 GWh
Eligible Hydro < 30MW	300 GWh	265 GWh	265 GWh
Total Generation	14,378 GWh	14,336 GWh	14,146 GWh
Surplus Applied	685 GWh	0 GWh	920 GWh
Total Applied to RPS Target	15,063 GWh	14,336 GWh	15,066 GWh
Additional Resources Needed	0 GWh	0 GWh	1,957 GWh
<i>Surplus Banked</i>	<i>0 GWh</i>	<i>409 GWh</i>	<i>0 GWh</i>
Procurement by Portfolio Content Category (GWh)			
Category 0 RECs	1,822	1,062	958
Category 1 RECs	11,516	13,095	13,008
Category 2 RECs	800	0	0
Category 3 RECs	199	149	149
Pre-June 1, 2010 Category 3 RECs	41	31	31
Total	14,378	14,336	14,146
Long-Term Contracts			
Percentage of Long-Term RECs	94%	>99%	>99%

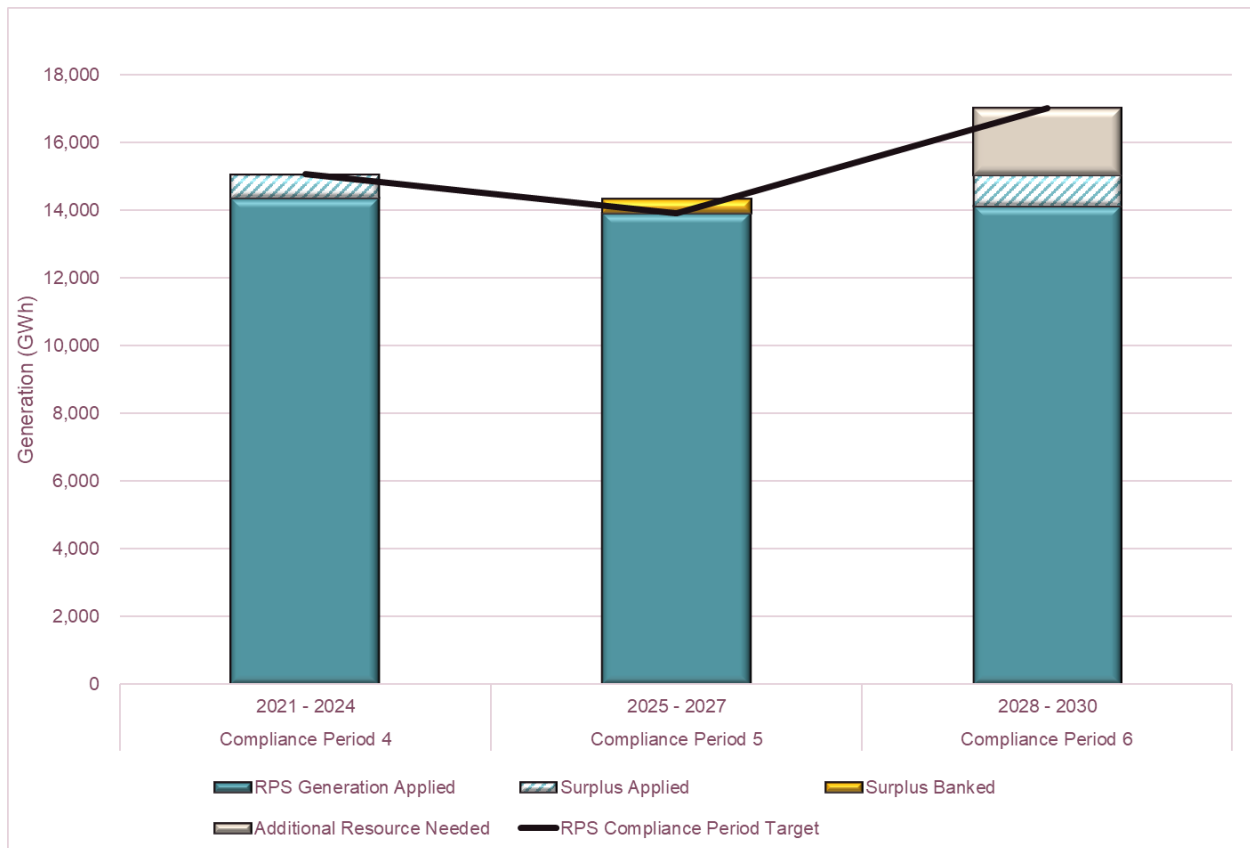
Note: Values in this table are subject to change.

SMUD’s currently procured renewable energy resources are predominately Portfolio Content Category (PCC) 0 and PCC 1 RECs. SMUD has procured some PCC 3 RECs from our customers’ distributed generation systems under SB 1. SMUD developed a strategy to optimize our renewables portfolio that includes procurement of PCC 2 resources and PCC3 RECs, and alternative uses of biomethane that maximize value in meeting compliance period requirements subject to *CEC RPS Regulations*, Section 3204 (c), and help further carbon emissions reductions. We procured PCC 2 and PCC 3 resources to help meet our compliance period 3 RPS obligations and are looking to procure PCC 1 or PCC 2 resources under short-term contracts to ensure we meet compliance period 4 obligations.

³ Only resources that are existing, under contract, or under an active procurement process are included in this table. SMUD’s 2030 Zero Carbon Plan calls for an additional 5,000 GWh of renewable resource procurement in compliance period 5 and 13,000 GWh in compliance period 6..

Table 2 shows the PCC 0, PCC 1, PCC 2, and PCC 3 RECs, that SMUD expects from currently committed eligible renewable resources (including RECs expected from an active procurement process). The majority of procurement from contracts/agreements signed after June 1, 2010 are PCC 1, sufficient to exceed the portfolio balance requirements specified in PUC § 399.16 (c) and in the *CEC RPS Regulations*, Section 3203 (c)-(e) with regards to procured electricity products for compliance with RPS requirements. SMUD intends to retire RECs within 36 months of generation to fully meet the portfolio balance requirements as mandated by RPS requirements. Figure 1 illustrates SMUD's compliance through 2030 utilizing compliance period generation and banked resources, along with any surplus and additional resource needs.

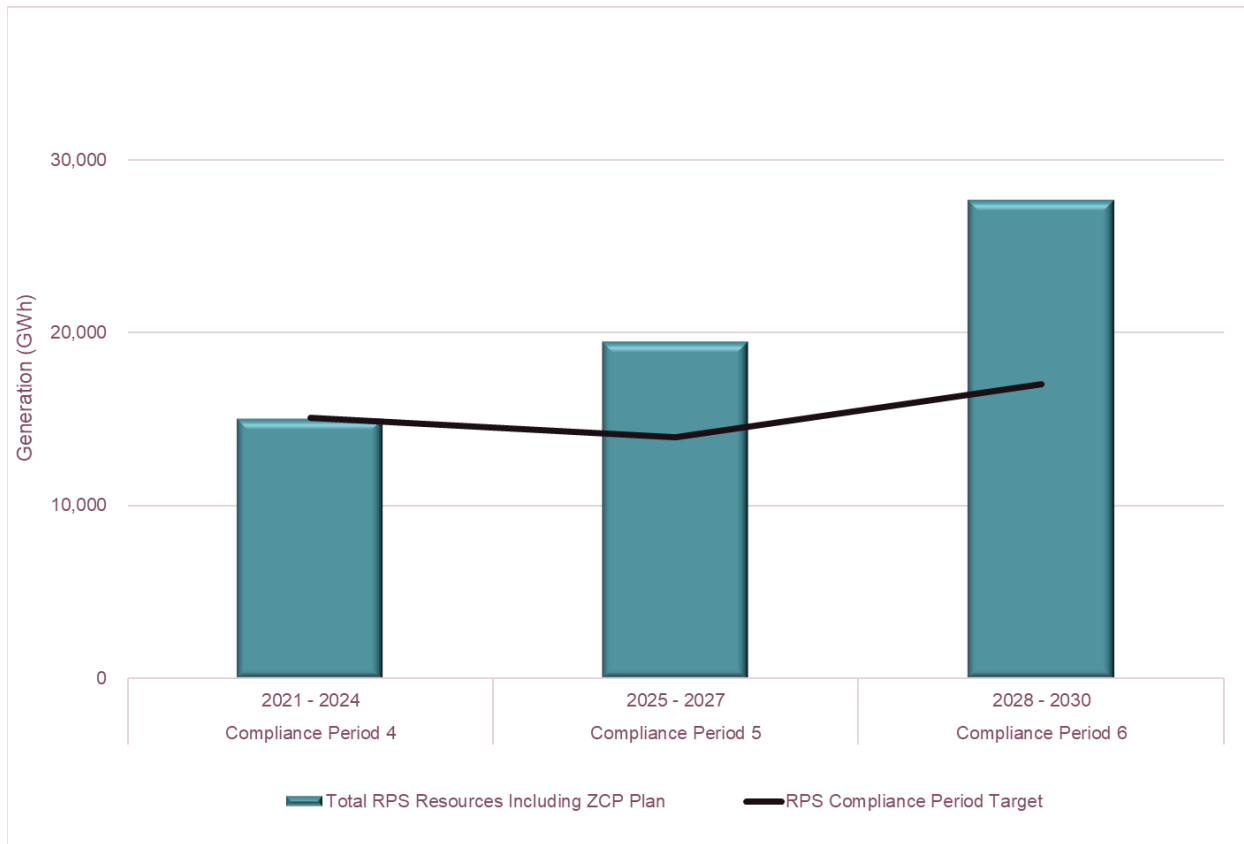
Figure 1: SMUD RPS Resources and Compliance



As noted above, Figure 1 also illustrates SMUD's need for additional resources to meet the compliance period 6 requirements. Consistent with our 2030 ZCP, we plan to procure additional renewable resources that will far exceed our RPS needs, as illustrated in Figure 2.

SBX1-2 permitted POUs to accumulate excess procurement in one compliance period for use in a subsequent compliance periods. Under these original excess procurement rules, only RECs from long-term contracts and owned resources could count in the excess procurement calculation. This meant that any RECs from short-term contracts were

Figure 2: Total RPS Resources Including Planned 2030 ZCP Procurement

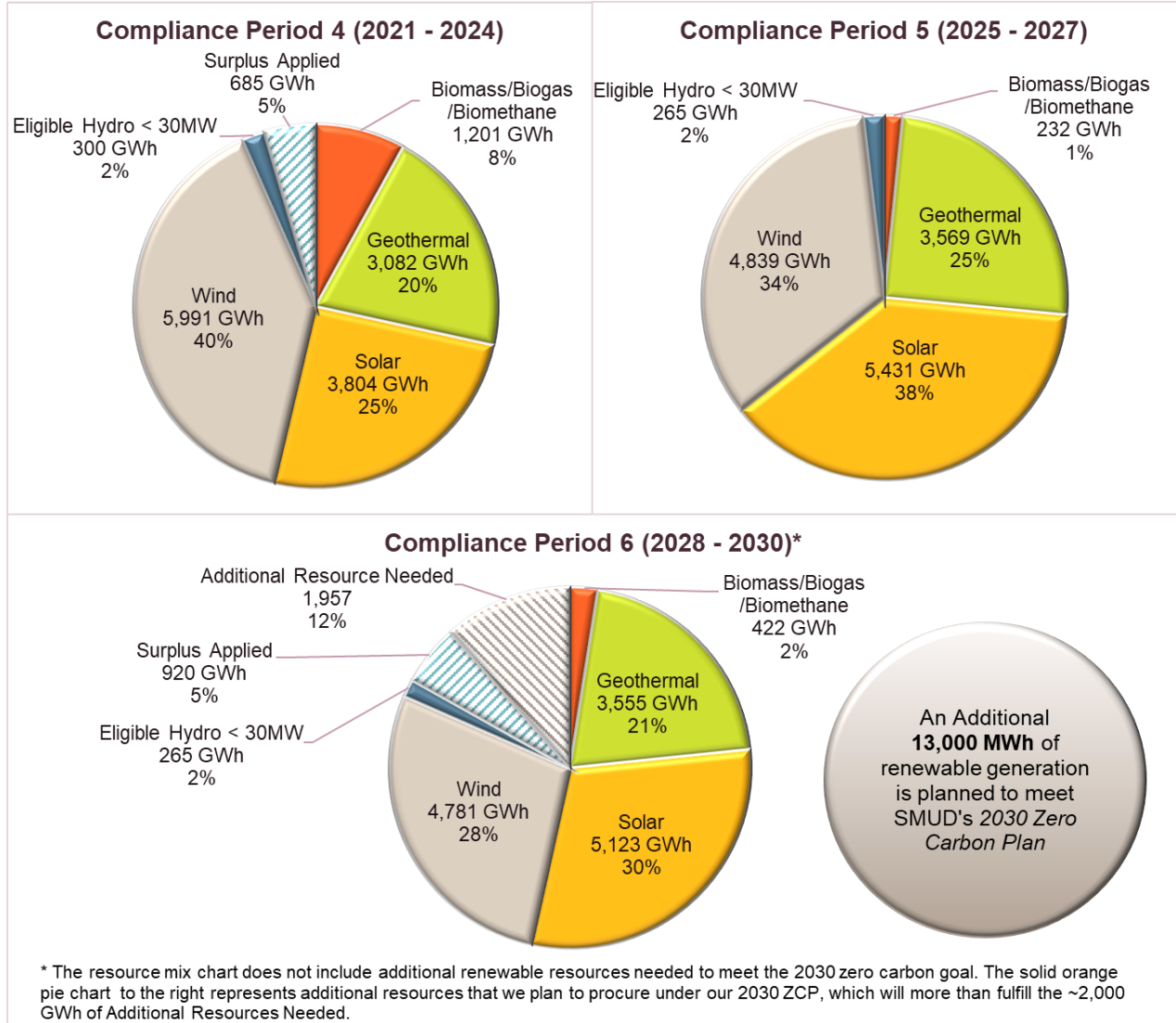


subtracted out before a POU could determine if it had any excess procurement. These original excess procurement rules remained in place until the end of compliance period 3. SMUD has banked excess procurement from compliance periods 1 and 2 for use in subsequent periods, pursuant to these existing excess procurement rules, which are currently implemented in *CEC RPS Regulations*, Section 3206 (a)(1). Once verification for compliance period 3 is completed, SMUD anticipates having banked excess procurement available to use in future compliance periods.

SB 350 significantly amended the excess procurement rules, allowing a POU to calculate its excess procurement without first subtracting out RECs from short-term contracts. Under these new excess procurement rules, only PCC 0 and PCC 1 RECs may be carried forward as excess procurement. This means that if a POU has excess PCC 2 or PCC 3 RECs, those RECs will not be able to be banked and carried forward. While these new excess procurement rules will become mandatory starting in compliance period 4, a POU may use these new excess procurement rules in compliance period 3 if the POU meets the 65% long-term procurement requirement specified in PUC § 399.13 (b), and elects to do so. SMUD's banked excess procurement as of the end of compliance period 2 was 3,551,599 RECs and expects to have approximately 1.2 million PCC 1 RECs of banked excess at the end of compliance period 3 (once verification is completed). Provisions regarding SMUD's authority to bank and use of excess procurement in subsequent compliance periods are included in our Enforcement Plan. SMUD also had historic

carryover that was completely retired and used to meet our compliance period 2 obligations. SMUD's total historic carryover balance, as approved by the CEC, was 2,666,104 RECs.⁴

Figure 3: SMUD RPS Compliance Resource Mix



SMUD's 2021 IRP, which is based on our 2030 ZCP, reflects a need for additional renewable procurement starting in 2025 in order to meet or zero carbon goal by 2030. As identified previously in this Procurement Plan, the tables and charts here do not reflect planned procurement beyond what is currently under an active procurement process, which results in a need for additional resources in compliance period 6.

⁴ Historic carryover balance was verified by the CEC as part of the Compliance Period 1 verification and compliance determination process. The verification report was adopted by the CEC in January 2017, and the compliance determination was issued by the CEC's executive director in June 2017.

SMUD is continuing to pursue additional renewable resource options not included in Table 2 and is working to identify when additional procurement activities must occur in order to add approximately 5,000 GWh of renewables in compliance period 5, and an additional 13,000 GWh in compliance period 6. We will continue to evaluate new options to ensure compliance through 2030 and meet our *2030 ZCP* goal. SMUD's continued efforts to optimize our renewables portfolios and procurement value to our customers will likely impact the timing of additional resource procurements. SMUD will closely monitor resource availability relative to compliance obligations and will strategically assess when to pursue new resources through solicitations, direct contracts with developers and marketers, and building our own. Figure 3 provides an estimate of SMUD's RPS resource mix by compliance period through 2030.

Note that all tables and figures are based on expected generation through 2030. Actual generation and resource mixes may change as SMUD procures additional resources or resources generate differently than expected. SMUD's projected compliance may also be affected by the difference between the current forecast retail sales and actual sales through 2030. The market response to SMUD's investments in electrification, along with the uncertain technological changes in that market may lead to increases or decreases in actual sales from those forecast. In addition, changes in customer demand for our Greenergy and SolarShares programs, and in the resources used to supply those programs, can impact the "net" sales used to calculate SMUD's RPS obligations. Finally, technological advances in non-RPS qualified carbon free technologies may alter the quantity of renewable resources needed to meet our zero carbon goals by 2030.

Section 3: Procurement Process

The SMUD Board of Directors (Board) establishes all RPS goals and SDs and considers them in short and long-term renewable resource investment decisions. As mentioned above, the SDs include policies for environmental performance, power reliability, carbon emissions reductions, financial objectives, and renewables RD&D and procurement. SMUD's IRP process helps ensure SMUD achieves its long-term goals and SDs, at a reasonable cost. The IRP process helps develop balanced recommendations that support renewable procurement and development actions and other SMUD SDs.

SMUD owns and operates eligible renewable energy resources and uses the resulting electricity products for RPS compliance or to meet the needs of our voluntary green programs. SMUD owns several small hydro, wind, and solar PV facilities which are listed in Appendix A.

SMUD also procures eligible renewable electricity resources by contract through formal solicitation processes and unsolicited offers as needed to meet the requirements of various statutory obligations and SMUD's own goals. These proposals and offers are evaluated based on benefits, costs and overall value to SMUD's customer/owners.

Section 4: Historic Carryover

Since the Board approved an RPS goal in 2001, SMUD has actively procured renewable energy. In order to ensure SMUD met its annual RPS goals and, specifically, the 2010 target, SMUD procured renewable energy exceeding the annual targets established in the *CEC RPS Regulations*. Per the *CEC RPS Regulations*, “Historic carryover” means a POU’s procurement that satisfies the following criteria:

- The procurement is for electricity and the associated renewable energy credit generated in 2004-2010 by any eligible renewable energy resource that met the Commission’s RPS eligibility requirements in effect when the original procurement contract or ownership agreement was executed by the POU.
- The original contract or ownership agreement was executed by the POU prior to June 1, 2010.
- The procurement is in excess of the sum of the 2004-2010 annual procurement targets defined in section 3206 (a)(5)(D) and was not applied to the RPS of another state or to a voluntary claim.

Through the CEC’s verification process, SMUD received 2,666,104 RECs of historic carryover from renewable energy consistent with these criteria. SMUD applied all its historic carryover towards the requirements for compliance period 2.

Section 5: Portfolio Content Category 0 Resources

SMUD has some of its current renewable supply procured pursuant to contracts or ownership agreement executed before June 1, 2010 from resources that met the CEC’s eligibility requirements when the resources were procured. Pursuant to PUC § 399.16 (d) as implemented in *CEC RPS Regulations*, Section 3202 (a)(2), the electricity product from these legacy resources are counted in full toward the RPS requirements. The CEC reporting forms refer to these resources as PPC “0” resources.

SMUD has modified or extended some of these contracts and as a result has changed the status of the resources from the date of modification from PCC 0 to PCC 1. See Appendix A for a listing of SMUD’s resources.

Section 6: Additional Committed Category Resources

SMUD continued to develop and procure renewable supply after June 1, 2010. SMUD’s Feed-In Tariff (FIT) solicitation in 2009 resulted in nearly 100 MW of solar PV systems that have since been constructed under the FIT. SMUD expanded its Solano Wind Facility in the Rio Vista area in 2012, by completing construction of Solano Phase III, which added 128 MW of capacity. In 2013, SMUD supported the construction of several local dairy digester projects in SMUD’s service territory. Some of SMUD’s dairy digester resources have experienced operational issues and have been offline occasionally.

SMUD also has 3 legacy common carrier biomethane contracts that are certified to provide renewable biomethane to the Cosumnes Power Plant (CPP), along with a biogas cleanup facility near the Sacramento Regional County Sanitation District's (SRCSD) wastewater treatment plant that began injecting the cleaned biogas into SMUD's dedicated pipeline for combustion at CPP in 2011. This SRCSD biogas was previously combusted at SMUD's Carson power plant and may still be combusted there when combustion at CPP is infeasible (due to planned or unplanned outages). SMUD will continue exploring opportunities to maximize the value of these resources, including use of the biomethane for purposes other than the RPS that help advance the overall goals of our *2030 ZCP*.

SMUD has also extended contracts for two landfill gas facilities and a wind facility, and has added two geothermal and one solar PV projects.

Additionally, SMUD has added, or extended, the following contracts since the Procurement Plan was last updated:

- Wildflower Solar I – 13 MW solar PV project in SMUD's service territory began deliveries at the end of 2020.
- Rancho Seco PV II – 160 MW solar PV project in SMUD's service territory began deliveries in 2021.
- Grady Wind – 200 MW wind facility started delivery in 2019.
- South Fork Powerhouse – 1.9 MW small hydro facility started delivery in 2019.
- Chili Bar – 8.3 MW small hydro facility was purchased in 2020.

SMUD currently has some PCC 3 resources through the implementation of the SB-1 solar roof-top incentive program. The amount of PCC 3 generation represented is a fraction of the PCC 3 maximum in the CEC regulations. SMUD procured PCC 2 resources under short-term contracts to meet compliance period 3 RPS obligations as part of optimizing our overall renewables portfolio and plans to continue optimizing our portfolio mix, including procuring additional PCC 2 resources, through at least compliance period 4.

Section 7: Future Procurement

Since meeting its RPS goal through 2020 (compliance period 3), SMUD continues to conduct activities to procure renewable energy to meet future obligations. Activities include the following:

- SMUD staff will continue to seek additional renewable resources to address the RPS resource needs through 2030 and beyond. SMUD's *2030 ZCP* calls for significant additions of new renewable resources between 2025 and 2030 and is working to identify when the procurement process to meet these needs must occur. We plan to closely monitor when additional resources are needed and ensure that

requests for proposals for new projects are available well in advance of expected shortfalls, or that other means of identifying, negotiating, and contracting for new resources take place. Our *2030 ZCP* calls for many of the planned resource additions to be located within SMUD's service territory to provide greater local benefits, but we will also consider other in-state resources along with out-of-state resources.

- SMUD continually reviews existing renewable contracts set to expire to examine the possibility of extending and/or modifying these contracts.
- SMUD has signed agreements to purchase renewable energy from the following resources:
 - A new 100 MW solar PV facility located in Southern California that is scheduled to be online in 2022. RECs from this facility may be used for SMUD's voluntary renewable programs, with any surplus available to meet RPS requirements.
 - A 100 MW geothermal project scheduled to begin deliveries in January 2023.
 - A local (SMUD service territory) 200 solar PV plus 100 MW battery storage project expected to be operational in 2024.
 - A new local 50 MW solar PV project expected to be online in 2024.
- SMUD is planning to repower the earliest phase of our existing Solano Wind facility, and incorporating it into a Solano Wind phase 4 (~85 MW) project. .
- SMUD is currently engaged in a solicitation process to procure approximately 340 MW of solar PV resources and 170 MW of battery storage located in SMUD's service territory with expected online dates in 2024. This is the first of what is expected to be multiple solicitations to help meet the resource needs identified in the *2030 ZCP*.
- SMUD staff has supported development of new local dairy digester projects and continues to look for opportunities to economically expand this resource in SMUD's service territory.
- As SMUD's SolarShares and Greenergy Programs are expected to expand, staff continues to look for solar and renewable projects to supply these programs.

Some of the resources used to serve SMUD's voluntary renewable programs are listed here since any excess generation not used to serve load from those programs will be used to meet RPS obligations. However, this plan and any requirements or provisions herein apply to procurement to serve SMUD's RPS obligations.

These planned activities and other future procurement may also contribute to meeting SMUD's RPS compliance requirements, along with existing resources and committed projects. In addition, they will add to SMUD's renewable fuel diversity and contribute toward SMUD's longer term carbon reduction goals.

Appendix A – SMUD RPS Resources

Existing Resources

Resource	Technology	PCC	Short/Long	Capacity		Termination
CPP	Biomethane	PCC 0 & 1	Long			Post 2030
Solano Phase 1 & 2	Wind	PCC 0	Long	102		Post 2030
Solano Phase 3	Wind	PCC 1	Long	128		Post 2030
Grady	Wind	PCC 1	Long	200		Post 2030
Kiefer 1	Biogas	PCC 1	Long	8.3		2025
Kiefer 2	Biogas	PCC 1	Long	5.7		2026
Highwinds	Wind	PCC 1	Long	50		2025
Yolo Landfill	Biogas	PCC 0	Long	3.4		2026
Santa Cruz (GRS, Landfill)	Biogas	PCC 0	Long	1.9		2024
Loyalton Cogen (SB 859)	Biomass	PCC 1	Short	4.2		2023
Cal Energy	Geothermal	PCC 1	Long	30		Post 2030
Patua 1	Geothermal	PCC 1	Long	21		Post 2030
Robbs Peak	Small Hydro	PCC 0	Long	29		Post 2030
Jones Fork	Small Hydro	PCC 0	Long	11.5		Post 2030
South Fork Powerhouse	Small Hydro	PCC 1	Long	1.9		Post 2030
Chili Bar	Small Hydro	PCC 1	Long	8.3		Post 2030
RanchoSeco PV *	Solar PV	PCC 1	Long	10.9		Post 2030
Great Valley Solar *	Solar PV	PCC 1	Long	60		Post 2030
Wildflower Solar I *	Solar PV	PCC 1	Long	13		Post 2030
Rancho Seco PV II *	Solar PV	PCC 1	Long	160		Post 2030
FIT **	Solar PV	PCC 1	Long	100		Post 2030
WAPA CVP	Small Hydro	PCC 0	Long	13.5		Post 2030
New Hope Dairy	Biogas	PCC 1	Long	0.4		Post 2030
Van Warmerdam Dairy	Biogas	PCC 1	Long	0.6		Post 2030
Van Steyn Dairy	Biogas	PCC 1	Long	0.2		2025
Cal Expo	Solar PV	PCC 0	Long	0.4		2020
Commercial PV (SB-1, PCC 3)	Solar PV	PCC 3	Long			Post 2030

Future Resources - Contracted/Under Development

Resource	Technology	PCC	Short/Long	Capacity	Online	Termination
NTUA ***	Solar PV	PCC 1	Long	100	2022	Post 2030
Calpine Geysers	Geothermal	PCC1	Long	100	2023	Post 2030
Solano Wind Phase 4	Wind	PCC 1	Long	85.5	2024	Post 2030
Coyote Creek (+ 100 MW Battery Storage)	Solar PV	PCC 1	Long	200	2024	Post 2030
Kings Country	Solar PV	PCC 1	Long	50	2024	Post 2030

Future Resources - Planned/Under Consideration

Resource	Technology	PCC	Short/Long	Capacity	Online	Termination
Sacramento Solar (+ 170 MW Battery Storage)	Solar PV	PCC 1	Long	340	2024	Post 2030

* These resources will be used primarily to serve load from SMUD's SolarShares programs and not available for RPS compliance needs. However, any excess generation not needed to serve SolarShares loads may be applied to SMUD's RPS compliance needs.

** Generation from the FIT resources will be used to serve SMUD's voluntary programs on occasion as needed (i.e. unexpected fluctuations in loads, delay in solar/renewable resource development, etc.)

*** The NTUA agreement specifically identifies the use of generation from this resource may be used to meet RPS requirements or to serve load from our voluntary renewable programs (SolarShares, Greenergy).

All RECs from these facilities are tracked in WREGIS and retired into the appropriate retirement accounts (compliance or voluntary program) to ensure no double counting between programs occurs.