

# Progress Report

## Electricity Supply Reliability Reserve Fund

January 31, 2023



## Department of Water Resources

Statewide Water & Energy

Electricity Supply and Strategic Reserve Office

July 2022 to December 2022 Reporting

### Electricity Supply and Strategic Reserve Office

California is transitioning to one hundred percent clean energy and leading the nation in electrification at the same time climate change-induced extreme weather and emergencies are negatively impacting electric reliability. For example, a massive heatwave across the western United States led to widespread power outages in 2020 while the devastating Bootleg Fire in 2021 threatened electricity transmission lines and significantly reduced power imported into California. During both events California Governor Gavin Newsom issued executive orders to take decisive actions to shore up electric reliability. Specifically, the Governor's July 2021 Executive Order directed the Department of Water Resources (DWR) to secure and deploy temporary and emergency power generation to supplement existing grid resources. In May 2022, analysis by the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and the California Independent System Operator (CAISO) found that additional generating resources were needed to address a number of extraordinary factors such as extreme weather events, massive wildfires, severe drought, and supply chain constraints delaying new electric generation deployment. As described in detail below, this analysis and other factors led to a series of legislative actions that once again called upon DWR, with its expertise as one of the largest power producers in California and prior experience with procuring power and deploying emergency power generators, to play a critical role in safeguarding the state by securing resources to address extreme events. DWR began expedited procurement activities in July 2022 in time to deploy resources during the record-setting heat emergency in September 2022.

**On the cover:  
A drone view showing  
the temporary  
generation facility at  
Roseville Energy Park in  
Northern California.**

In June 2022, Assembly Bill (AB) 205 (Ting), AB 178 (Ting), and AB 180 (Ting) were signed into law by Governor Newsom. These three pieces of legislation collectively established the Electricity Supply Strategic Reliability Reserve Program (ESSRRP) and set forth new responsibilities and project activities in DWR funded by the newly established Electricity Supply Reliability Reserve Fund (ESRRF). The

ESSRRP's creation added Division 29 to the California Water Code and makes clear the powers and responsibilities established under Division 29 are separate and distinct from those for the State Water Project and are funded entirely separately (Water Code Section 80700(b), 80711, 80720). Pursuant to California Water Code Section 80700, DWR promptly established temporary resources to undertake the objectives set forth in AB 205, focusing on supporting the ESSRRP. DWR created a new Deputy Director-level division consisting of 25 people in support of the implementation of AB 178, AB 180, and AB 205. DWR's Deputy Director of Statewide Water and Energy oversees the Electricity Supply and Strategic Reserve Office, overseeing both the new ESRRF/ESSRRP and the previous State Power Augmentation Program which was developed in response to Governor Newsom's July 2021 executive order to quickly deploy 120 Megawatts (MW) of new generation in 2021 to be available for extreme heat events, wildfires, or any other climate-driven energy emergencies.

One of DWR's responsibilities includes cross-coordination of electricity supply reliability between DWR, the Governor's Office, CEC, California Air Resources Board (CARB), CPUC, and the CAISO. Other responsibilities include conducting technical research and prioritizing projects, bringing new reliable resources on to the grid (including renewable technologies that are low- and zero-emission solutions), managing the authority to construct, own and/or operate, provide site management and maintenance of emergency and temporary electricity projects, and contracting or financing through loans or reimbursement agreements for reliability resources which may include imported energy or imported capacity products. Because of the immediate effect of this legislation and the urgency of these activities to achieve summer electricity reliability and maintain an affordable and equitable transition to a clean, reliable California energy system, DWR began implementation steps immediately.

Water Code Section 80730 requires DWR to issue a written report to the Joint Legislative Budget Committee detailing actions undertaken by ESSRRP and funded by the ESRRF. Per the requirements of the Legislature, these actions under the Water Code are in all respects for the welfare and the benefit of the people of the state, to protect public peace, health, and safety, and constitutes an essential governmental purpose.

### **Reporting Period**

The June 30, 2022 legislation requires DWR to submit regular progress reports for the ESRRF to the Joint Legislative Budget Committee. The first report is due January 31, 2023, and then every May 1, August 1, and December 1 thereafter. This initial report details actions undertaken by DWR and funded by the ESRRF from July 1, 2022 to December 31, 2022. Per the Legislature's collaboration directive in AB 205, DWR established coordination meetings with the CEC, CPUC, CAISO, and the Governor's Office beginning July 19, 2022. Weekly meetings to discuss ESSRRP activities and funding have been held consistently during this reporting period.

## Introduction

DWR, in consultation and collaboration with the Governor's Office, CEC, CARB, CPUC, and the CAISO, manages and is responsible for DWR's portion of the ESSRRP. Pursuant to AB 205, as amended by AB 209, DWR acts as a power provider of last resort to ensure the lights remain on as California transitions to a clean energy future and contends with increasing climate impacts and other reliability challenges. Through the ESRRF, DWR will continue to administer, manage, and invest in the ESSRRP in order to support the mission to further increase grid resilience, increase affordability, and accelerate the deployment of resources needed to achieve California's clean energy transition.

## Contracted Program Support, Professional Services and Equipment

Per AB 205, DWR entered into agreements with several external entities to secure professional program and project management (to track scope, budget, schedule, and issues/risks), construction and commissioning expertise, and specialized inspection experts. These services were immediately needed to secure and determine technology and site feasibility, program management, site management, and to meet the deadlines set forth in statute, beginning with Water Code Section 80710. Additionally, DWR procured generation equipment to meet Summer 2023 energy generation and reliability objectives. To maintain distinct and separate agreements from the State Water Project, it was critical to obtain and secure these services and equipment using monies from the ESRRF. DWR expects invoicing to begin in early 2023 and disbursements will be reflected in the May 2023 report. These services contracts to-date are listed in Table 1 below.

<b>Table 1</b>				
<b>Contractor</b>	<b>Contract Start Date</b>	<b>Contract End Date</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
General Electric Co.	09/13/2022	N/A	\$ 122,590,766	\$ 0.00
Kiewit Power Constructors, Co.	10/15/2022	06/30/2027	\$ 120,000,000	\$ 0.00
Stantec Consulting Services, Inc.	07/29/2022	06/30/2027	\$ 6,000,000	\$ 0.00
Ulteig Engineers, Inc	07/01/2022	06/30/2027	\$ 6,000,000	\$ 0.00
<b>Program Support, Professional Services, and Equipment Total:</b>			<b>\$ 254,590,766</b>	<b>\$ 0.00</b>

### Imported Firm Energy Agreements

In Summer 2022, DWR entered into agreements with Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) pursuant to California Water Code Section 80710, subdivision (b)(2) under which electrical corporations, as defined in Section 218 of the California Public Utilities Code, may seek reimbursement for the value of imported energy and imported capacity products in support of summer electric service reliability. These corporations contracted for imported Firm Energy<sup>1</sup> to support statewide summer electric service reliability and DWR provided reimbursement for the resulting above market costs, per legislation. In consultation with CPUC, DWR confirmed that imports procured through DWR were above the resource adequacy requirement for each utility set by the CPUC. The Summer 2022 imported energy reimbursement budget was planned for a maximum of \$150 million. DWR secured a total of 1,646 MW for this component of the ESSRRP, which directly supported California's electric grid during the current reporting period—including the September 2022 heat wave event. DWR is currently in the invoicing and true-up process and expects close-out of this program component in Q2 2023. DWR invoicing with SDG&E, begun in early January 2023, will be reported in the May 2023 report. The numbers of megawatts (MW), dollars allocated, and dollars dispersed are shown in Table 2 below.

<b>Corporation</b>	<b>MW</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
PG&E	991.0	\$ 95,000,000	\$ 42,048,677
SCE	555.0	\$ 50,000,000	\$ 7,195,891
SDG&E	100.0	\$ 5,000,000	\$ 0.00
<b>Imported Energy Total:</b>	<b>1,646.0</b>	<b>\$ 150,000,000</b>	<b>\$ 49,244,568</b>

### Imported Firm Energy Agreements Emissions

For the procured imported energy, the party responsible for paying the greenhouse gas (GHG) allowance is the entity that serves as the Scheduling Coordinator (SC) for a transaction that brings the energy into the CAISO. For the majority of the imported energy transactions, PG&E, SCE, and SDG&E performed the role of SC and were responsible for the GHG allowance costs. There were

<sup>1</sup> Imported firm energy (or firm energy imports) refers to energy contracted for delivery from one system to another which includes the transmission capacity necessary to successfully deliver the energy. In contrast, non-firm energy may be curtailed due to lack of transmission capacity. Firm energy contracts are widely used throughout the west such as Schedule C of the Western Systems Power Pool (WSPP) Agreement used to support these import transactions.

some individual transactions where the seller of that product to PG&E, SCE, and SDG&E took on the role of the SC and in those cases the seller was responsible for paying the GHG allowance costs. The delivery period for the transactions was July 1, 2022 to September 30, 2022.

### 2022 Emergency & Temporary Power Generators > 5 MW

Pursuant to Water Code Section 80710(b)(1)(B), DWR may contract with new emergency and temporary power generators of 5 MW or more. If a generator is operated using diesel fuel, DWR shall not operate it after July 31, 2023. DWR was successful in securing agreements with PG&E and SCE for a total of 82.4 MW of back-up diesel generating units that were installed and operational by September 1, 2022. PG&E and SCE were critical partners for DWR in this urgent effort. First, PG&E and SCE were able to leverage their expertise and procurement reach to secure these back-up diesel generators from construction equipment rental companies. Due to limited supply, some of the generators were imported from other parts of the United States to support California. These generators would not have been installed in a timely manner if DWR had not entered into agreements with PG&E and SCE. Second, PG&E and SCE identified sites within their utility footprints where distribution capacity was readily available to maximize emergency response capability. Lastly, the diesel generators were certified as part of CARB's Portable Equipment Registration Program (PERP), but DWR took the extra precaution to work with PG&E and SCE to secure approval of their use per the local Air Pollution Control Districts' local requirements for back-up diesel generators. These ESSRRP assets supported the California electric grid during the historic September 2022 heat event when every MW counted. The delivery period for each agreement ended October 31, 2022. As shown in Table 3, the 82.4 MW were distributed over four locations in California: Oroville, Cloverdale, Clearlake, and Goleta. In October 2022, these assets were decommissioned, and the program began the close-out period. Invoicing under the PG&E-DWR agreement began after the current reporting period. Updated disbursements will be reported in the May 2023 report covering the period from January 1, 2023 to April 30, 2023.

<b>Utility Footprint</b>	<b>Site Name</b>	<b>MW</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
PG&E	Clearlake	17.7	\$ 19,776,805	\$ 0.00
	Cloverdale	17.0		
	Oroville	16.0		
SCE	Goleta	31.7	\$ 17,700,000	\$ 1,281,256
<b>2022 Temporary Generation Total:</b>		<b>82.4</b>	<b>\$ 37,476,805</b>	<b>\$ 1,281,256</b>

### 2022 Emergency & Temporary Power Generators > 5 MW Emissions

As noted above, DWR collaborated with PG&E and SCE to obtain the CARB PERP certificates for each 2022 emergency diesel generator. CARB utilizes the Diesel Particulate Matter (DPM) as the regulated air pollutant in both pollutant and toxic categories. DWR, in collaboration with CARB, calculated the DPM mass by this specific load type, as shown in Table 4 below. As noted above, these units were demobilized and are no longer assets in the ESSRRP.

<b>Table 4</b>			
<b>Utility Footprint</b>	<b>Site Name</b>	<b>Runtime Hours</b>	<b>DPM Emissions [g]</b>
PG&E	Clearlake	244	29,066
	Cloverdale	242	5,557
	Oroville	272	42,343
SCE	Goleta	399	88,212
<b>2022 Temporary Generation Total:</b>		<b>1,157</b>	<b>165,178</b>

### State Power Augmentation Program (SPAP)

In accordance with the Governor's Emergency Proclamation issued July 30, 2021,<sup>2</sup> DWR, CEC, and CAISO partnered together to deploy temporary power generators by September 2021 under the State Power Augmentation Program (SPAP), as shown in Table 5 below. The effort is part of California's broader effort to safeguard the state's energy system in the face of climate-induced drought, wildfires, and heat waves that are impacting our state's grid. DWR, CEC, and CAISO procured, installed, and licensed four temporary natural gas turbine generator units totaling 120 MW, at existing power generation sites located in Roseville (two units) and Yuba City (two units). Each SPAP unit is powered by natural gas with the capability of running on a blend of up to 75 percent hydrogen in the future depending on the availability of hydrogen fuel. The SPAP units are placed at existing power generation sites to feed directly into the grid as needed and at the direction of the CAISO. The SPAP units were operational on September 22, 2021 and directly supported California's electric grid during the current reporting period—including the September 2022 extreme heat event. The current agreements allow the units to remain available for operation until the end of 2023. As they were dispatched during the September 2022 heat event, the SPAP units are expected to receive revenue payments into the ESSRRF in early 2023 when the CAISO Settlement Statements for the time period are

<sup>2</sup> Newsom, G. (2021, July 30). Executive Department State of California - California governor. Emergency Proclamation. <https://www.gov.ca.gov/wp-content/uploads/2021/06/6.17.21-Extreme-Heat-proclamation.pdf>



received and processed. This revenue will be reported during the May 2023 report. DWR is currently in negotiations with both facility operators to determine the feasibility of extending operations of both sites—Calpine Greenleaf 1 and Roseville Energy Park—in order to retain the 120 MW of capacity within the ESSRRP portfolio.

<b>Site</b>	<b>MW</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
Roseville Energy Park	60.0	\$ 104,522,494	\$ 83,556,557
Calpine Greenleaf 1	60.0	\$ 106,983,586	\$ 83,150,698
<b>SPAP Total:</b>	<b>120.0</b>	<b>\$ 211,506,080</b>	<b>\$ 166,707,255</b>

### SPAP Emissions

SPAP emissions are comprised of commissioning hours, maintenance, and emergency dispatches, such as the September 2022 historic heat wave dispatch hours. Table 6 below was produced using the United States Environmental Protection Agency Emissions Collections and Monitoring Plan System for this reporting period, per site. For clarification within Table 6 below, the “Operating Hours” is a count of the number of hours recorded with Operating Time greater than zero. “Operating Time” is the sum of the hourly Operating Time and reports the fraction of the clock hour during which the unit combusted any fuel (or the fraction of the clock hour during which the stack or pipe was used).

<b>Site Unit</b>	<b>Operating hours</b>	<b>Operating Time (hrs)</b>	<b>SO<sub>2</sub> Mass (tons)</b>	<b>CO<sub>2</sub> Mass (tons)</b>	<b>NO<sub>x</sub> Mass (tons)</b>
Calpine Greenleaf1 CTGA	120	91.4	0.0	1,072.2	4.4
Calpine Greenleaf1 CTGB	99	74.0	0.0	954.1	3.3
Roseville Energy Park CT005	26	15.9	0.0	208.3	0.6*
Roseville Energy Park CT006	54	19.6	0.0	256.5	0.3*
<b>SPAP Total</b>	<b>299</b>	<b>200.8</b>	<b>0.0</b>	<b>2,491.1</b>	<b>8.6</b>

\* NO<sub>x</sub> Mass (tons) values calculated with data obtained from US EPA ECMPS Client Tool Emissions Collection and Monitoring Plan System (ECMPS) Feedback Reports. All other data directly from the same reports that were deemed accepted/validated by the US EPA.

### Extended Operations of Retiring Facilities

Pursuant to AB 180, Budget Act of 2021, AB 178, Budget Act of 2022, and AB 205, DWR sought to fund, reimburse, or compensate the owners of electric generating facilities pending retirement for costs, expenses or financial commitments incurred to retain future availability. During this reporting period, DWR entered into one agreement with PG&E, as the owner and operator of the Diablo Canyon Nuclear Power Plant (DCPP), which is currently scheduled for decommissioning in 2024 and 2025, as shown in Table 7 below. The agreement with PG&E secured necessary funding for the immediate procurement of fuel purchases, spent fuel management, and other costs necessary to maintain the option of extending DCPP past the current retirement dates for its generation units. PG&E is actively procuring the aforementioned items and execution of fuel agreements is expected to commence in early 2023.

On September 30, 2022, the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS) recommended to the State Water Resources Control Board (SWRCB) to extend the compliance date of a number of once-through cooling (OTC) facilities from December 31, 2023 to December 31, 2026 in order to include these facilities in the ESSRRP portfolio.<sup>3</sup> Without SWRCB action, 2,859.3 MW<sup>4</sup> of natural gas-fired resources would retire by December 31, 2023 in order to comply with OTC policy.<sup>5</sup> The SACCWIS, which includes the CAISO, CEC, and CPUC, recommended compliance extension for the following units: Alamitos Units 3, 4, and 5 (1,141.2 MW), Huntington Beach Unit 2 (226.8 MW), and Ormond Beach Units 1 and 2 (1,491.3 MW). The SACCWIS explained that “[e]nabling DWR to contract with existing resources will allow the state to address reliability concerns and populate the Strategic Reserve more expeditiously and with more certainty while it works to secure additional

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<sup>3</sup> Statewide Advisory Committee on Cooling Water Intake Structures. (2022, September 30). 2022 Special Report. 2022 Special Report of the Statewide Advisory Committee on Cooling Water Intake Structures.

[http://www.swrcb.ca.gov/water\\_issues/programs/ocean/cwa316/sacccwis/docs/drpt031912.pdf](http://www.swrcb.ca.gov/water_issues/programs/ocean/cwa316/sacccwis/docs/drpt031912.pdf) and Tesfai, Leuwam, et al. “Use of the Once-Through Cooling Power Plants in the Strategic Reserve.” [www.caiso.com](http://www.caiso.com), 30 Nov. 2022, <http://www.caiso.com/Documents/Nov30-2022-JointLetter-CaliforniaStateWaterResourcesControlBoard-Use-Once-ThroughCoolingPowerPlants-StrategicReserve.pdf>.

<sup>4</sup> Based on net qualifying capacity as determined by the CAISO.

<sup>5</sup> California State Water Resources Control Board. (2021, October 10). Amendment to the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling. [https://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/docs/otc\\_policy\\_2021/otc\\_policy.pdf](https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/docs/otc_policy_2021/otc_policy.pdf)

resources."<sup>6</sup> Extended operations under the ESSRRP would not begin until 2024 or later and are dependent upon SWRCB extension of the OTC permits. The SWRCB is expected to vote on this issue in late summer or early fall 2023.

In the meantime, DWR has initiated contract discussions with the OTC owners AES Corporation (AES) and Ormond Beach Power, LLC (GenON). As part of these negotiations, AES elected to sign commitment letters with DWR, as shown in Table 7 below. The commitment letters provide funding to AES on a reimbursable basis during the pendency of negotiations with DWR to extend the operations at certain AES facilities from their planned retirement dates. These funds will secure necessary materials and equipment to perform maintenance activities necessary to extended operations. During this reporting period, AES is procuring long-lead time equipment and materials, pursuant to each commitment letter.

DWR is also collaborating with the CPUC, CEC, and CAISO to work toward negotiating agreements which could ultimately add OTC facilities to the ESSRRP portfolio for grid reliability during extreme events.

Since the units are not yet in the ESSRRP, there are no emissions or pollutants to report during this period.

<b>Corporation</b>	<b>MW</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
PG&E	2,256.0	\$ 75,000,000	\$ 0.00
AES	1,368.0	\$ 17,710,344	\$ 0.00
<b>Extended Operations of Retiring Facilities Total:</b>	<b>3,630.0</b>	<b>\$ 92,710,344</b>	<b>\$ 0.00</b>

### **2023 Emergency & Temporary Power Generators >5 MW**

Under the authority provided in Water Code Section 80710(b)(1)(B), DWR executed three separate contracts with Enchanted Rock Electric, LLC (ERock), Wellhead Energy, LLC (Wellhead), and the California State University Channel Islands (CSUCI), respectively, and one letter agreement with Ares Panoche Holdings, LLC (Panoche) to secure emergency and temporary power generators for grid reliability during extreme events by September 2023, as

<sup>6</sup> Statewide Advisory Committee on Cooling Water Intake Structures. (2022, September 30). 2022 Special Report, Pg. 15. 2022 Special Report of the Statewide Advisory Committee on Cooling Water Intake Structures.

[http://www.swrcb.ca.gov/water\\_issues/programs/ocean/cwa316/saccwis/docs/drpt031912.pdf](http://www.swrcb.ca.gov/water_issues/programs/ocean/cwa316/saccwis/docs/drpt031912.pdf)

shown in Table 8 below. Site studies, engineering design, equipment procurement activities, site certification, permitting, and project management activities began in Q4 2022 to meet the rigorous demands of the September 2023 schedule deadline. The operational period for each agreement ends December 31, 2027. On October 27, 2022, due to the parties' inability to agree on acceptable commercial terms including cost parameters, DWR discontinued the Panoche negotiations before that 52 MW project commenced operation. On December 7, 2022, due to a change in site ownership, DWR could no longer pursue the Wellhead site for a 60 MW project in Goleta as viable under the ESSRRP. DWR will reimburse both Panoche and Wellhead for their respective reasonable costs, as deemed acceptable under the agreements with those entities, but will no longer include the Panoche or the Wellhead Goleta site activities in future reports. Invoicing for these incurred costs are expected to begin in early 2023 and will be reflected in the May 2023 report. The net total capacity after cancellations will add 171 MW to the California grid during extreme events.

<b>Table 8</b>				
<b>Corporation</b>	<b>Site Name</b>	<b>MW</b>	<b>Allocated Budget</b>	<b>Disbursed by 12/31/22</b>
CSUCI	Channel Islands	27.5	\$ 7,000,000.00	\$ 85,000.00
ERock	City of Lodi	48.0	\$ 101,010,000.00	\$ 33,201,493.00
	Modesto Irrigation District	48.0	\$ 99,790,000.00	\$ 32,412,510.00
	Turlock Irrigation District	47.5	\$ 83,850,000.00	\$ 32,683,676.00
Wellhead	Goleta	n/a	\$ 23,000,000.00	\$ 0.00
Panoche	Unicorn	n/a	\$ 50,000.00	\$ 0.00
<b>2023 Temporary Generation Total:</b>		<b>171.0</b>	<b>\$ 314,700,000.00</b>	<b>\$ 98,382,679.00</b>

No generators under this part of the ESSRRP have been installed, commissioned, or operated. Therefore, there are no emissions to report for this reporting period.

## Summary

In a short time, DWR has executed multiple agreements for professional and technical expertise, energy and capacity, energy generation equipment, and extension of existing facilities. DWR, while being a prudent steward of state funds, mitigating project risk, and being cognizant of local communities, continues to develop and secure additional facilities to bolster the ESSRRP portfolio. In the spirit of innovation and collaboration, DWR and its partners established communication channels to expedite processes and jointly strengthen California's electric grid during its transition to meeting California's clean energy goals. DWR also established a permanent office for Statewide Water & Energy and a new Deputy Director to ensure the continued collaboration, administration, and management of the ESSRRP portfolio. DWR is confident it will continue to meet its various energy objectives defined in statute and looks forward to building and maintaining an ESSRRP in support of a reliable electric grid.