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Investment Plan

Electricity Supply Reliability Reserve Fund

June 2023

Department of Water Resources acknowledges the efforts and contributions made by leadership and staff members.

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Department of Water Resources
Statewide Water & Energy

Electricity Supply Reliability Reserve Fund

June 2023 Investment Plan

I. Executive Summary

Through the Electricity Supply and Strategic Reliability Reserve Program (ESSRRP), the Department of Water Resources (DWR) acts as a backstop for the state of California by providing incremental power during extreme events, as defined in Public Resources Code Section 25790.5, subdivision (b), to ensure the lights remain on. As California transitions to a clean energy future and contends with increasing climate change-driven impacts and other reliability challenges, the Legislature determined it was necessary for DWR to have this role. Through the Electricity Supply Reliability Reserve Fund (ESRRF), DWR's Electricity Supply Strategic Reserve Office (ESSRO) manages the ESSRRP to support California's electric reliability, increase affordability, and accelerate the deployment of resources needed to achieve California's clean energy transition.

Pursuant to Water Code Section 80710, subdivision (i), DWR prepared this investment plan detailing the terms, costs, and scope of ESSRRP contracts executed after October 31, 2022. The investment plan will be presented to the California Energy Commission (CEC) for approval at a CEC business meeting. This investment plan is divided into two sections: (1) investments committed to after October 31, 2022; and (2) anticipated future investments.

For committed investments, DWR entered into one service contract and three capacity contracts for generation that would have retired but for the ESSRRP. For anticipated future investments, DWR has issued three requests for information (RFIs) to help prioritize zero and low-emission resources for the ESSRRP. DWR will use the RFIs for insight into viable resources that can come online by summer 2024 to address extreme events that negatively impact electric reliability. In the meantime, DWR is currently in negotiation to extend the operation of existing emergency and temporary generation but has voluntarily declined to pursue any diesel generation ahead of the Water Code deadline of July 31, 2023.

DWR's investment plan reflects the critical balance between supporting electric reliability while being a prudent steward of state funds, mitigating project risk, being cognizant of local communities, and continuing efforts to prioritize zero- and low-emission

technologies. DWR and its partners continue to collaborate on supporting electric grid reliability while transitioning to meeting California's clean energy goals.

II. Background

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 wide-spread 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, an 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 on 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 2021 in time to deploy resources during the record-setting heat emergency in September 2022.

In June 2022, Assembly Bill 205 (Committee on Budget, Chapter 61, Statutes of 2022) (AB 205), Assembly Bill 178 (Ting, Chapter 56, Statutes of 2022) (AB 178), and Assembly Bill 180 (Ting, Chapter 44, Statutes of 2021) (AB 180) 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). AB 205 added Division 29 to the Water Code, creating the ESSRRP. Among other things, it makes clear the powers, responsibilities, and funding established under Division 29 are separate and distinct from those for the State Water Project (Water Code Section 80700(b), 80711, 80720).

DWR's Electricity Supply and Strategic Reserve Office (ESSRO) oversees both the ESRRF and ESSRRP. ESSRO's responsibilities includes conducting technical research and prioritizing projects, bringing new reliable resources onto the grid (including renewable technologies that are low- and zero-emission solutions), managing the authority to construct, own and/or operate generation facilities, provide site management and maintenance of emergency and temporary electricity projects, and contracting or financing through loans or reimbursement agreements for reliability resources, which included imported energy or imported capacity products in 2022. In addition, ESSRO is responsible for cross-coordination between DWR, the Governor's Office, CEC, California Air Resources Board (CARB), California Public Utilities Commission (CPUC), the California Independent System Operator (CAISO) and other California balancing authorities.

III. Introduction

DWR acts as a backstop for the state of California by providing incremental power during extreme events to ensure the lights remain on. Through the ESRRF, ESSRO manages the ESSRRP in support of improving California's electric reliability, increasing affordability, and accelerating the deployment of resources needed to achieve California's clean energy transition.

This investment plan fulfills the requirements of Water Code Section 80710, subdivision (i) which directs DWR to prepare such a plan detailing the terms, costs, and scope of contracts entered into for the ESSRRP after October 31, 2022. This investment plan is divided into two sections: (1) investments committed to after October 31, 2022; and (2) anticipated future investments.

IV. Investments Committed to After October 31, 2022

DWR entered into one professional services contract and three capacity agreements with existing gas-fired powerplants that would have retired:

- Professional Services
    - Bureau Veritas North America Inc.
- Capacity Agreements
    - Ormond Beach Power, LLC
    - AES Alamitos, LLC
    - AES Huntington Beach, LLC

Each contract is discussed in greater detail below.

A. Professional Services

In February 2023, DWR entered into an agreement with Bureau Veritas North America, Inc. (BV) to secure professional program and project management, construction and commissioning expertise, and other related technical services. These services are 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. The BV agreement took effect on February 1, 2023 and runs through February 5, 2026. It has a planned budget of up to $6,000,000. DWR expects invoicing to begin later in 2023. The BV agreement is for quality assurance inspection services to assure quality during manufacturing, procurement, design, installation/construction, and repair/refurbishment of equipment and materials in accordance with the equipment's/materials contract requirement. The agreement will support multiple assets within the ESSRRP.

B. Capacity Agreements

Pursuant to AB 180, AB 178, 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.

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 to enable these facilities to be included in the ESSRRP portfolio.[1] Without SWRCB action, 2,859.3 MW[2] of natural gas-fired resources would retire by December 31, 2023 in order to comply with OTC policy.[3] 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

[1] 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/saccwis/docs/drpt031912.pdf

[2] Based on net qualifying capacity as determined by the CAISO.

[3] 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

with more certainty while it works to secure additional resources."[4] Furthermore, the CAISO, CEC, and CPUC clarified that resources would not be considered resource adequacy resources since that "would lead to increased use of once through cooling as well as increased air emissions, which AB 205 seeks to limit."[5] Instead, the OTC "resources will only be called upon to support grid operations during extreme events (including any maintenance or test events recommended by and coordinated with the CAISO)."[6] 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 completed contract discussions with the OTC owners AES Alamitos, LLC (AES), AES Huntington Beach, LLC(AES), and Ormond Beach Power, LLC (GenON). ESSRO staff collaborated with the CPUC, CEC, and CAISO staff to negotiate three agreements to add the OTC facilities to the ESSRRP portfolio for grid reliability during extreme events.[7] All three agreements include limits that the OTC units may only run as necessary to respond to extreme events, thereby balancing the grid's reliability needs against emissions from the units and usage of ocean cooling water. The agreements all provide that any market revenues and penalties for non-performance will be borne by the OTC owners. The specifics of the agreements are each explained in turn.

1. GenON Agreement

On March 24, 2023, DWR and GenON executed a capacity agreement in which DWR will pay GenON fixed monthly capacity payments to maintain the availability of the 1,491.3 MW Ormond Beach Generating Station from January 1, 2024 through December 31, 2026. The agreement is contingent on the SWRCB extending the OTC compliance

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[4] 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

[5] Tesfai, Leuwam, et al. "Use of the Once-Through Cooling Power Plants in the Strategic Reserve." *www.caiso.com*, 30 Nov. 2022, http://www.caiso.com/Documents/Nov30-2022-JointLetter-CaliforniaStateWaterResourcesControlBoard-Use-Once-ThroughCoolingPowerPlants-StrategicReserve.pdf

[6] *Ibid*.

[7] Public Resources Code Section 29790.5, subdivision (b) provides: "'Extreme event' means either of the following: (1)An event occurring at a time and place in which weather, climate, or environmental conditions, including temperature, precipitation, drought, fire, or flooding, present a level of risk that would constitute or exceed a one-in-ten event, as referred to by the North American Electric Reliability Corporation, including when forecast in advance by a load-serving entity or local publicly owned electric utility. (2)An event where emergency measures are taken by a California balancing authority, including when forecast in advance by the California balancing authority."

deadline. Although the payments are fixed, they are also shaped to be higher in the peak months (June through October) and lower in the off-peak months. The peak month rate is $9.25/kW-month and the off-peak month rate is $8.82/kW-month. The agreement includes a penalty and bonus system based on the performance of the facility if and when it is called by the CAISO to respond to an extreme event. Therefore, the estimated cost of the GenON agreement to the ESRRF is up to $558,011,387—assuming a conservative estimate of the facility being called to run often and meeting all of its bonus targets and no penalties incurred under the terms of the agreement.

2. AES Alamitos Agreement

On April 21, 2023, DWR and AES executed a capacity agreement in which DWR will pay AES fixed monthly capacity payments to maintain the availability of AES Alamitos Units 3, 4, and 5, which total 1,141.2 MW from January 1, 2024 through December 31, 2026. The agreement is contingent on the SWRCB extending the OTC compliance deadline. Although the payments are fixed, they are also shaped to be higher in the peak months (May through October) and lower in the off-peak months. The peak month rate is $10.95/kW-month and the off-peak month rate is $8.95/kW-month. The agreement includes a penalty and bonus system based on the performance of the facility if and when it is called by the CAISO to respond to an extreme event. Therefore, the estimated cost of the AES Alamitos, LLC agreement to the ESRRF is up to $528,616,081—assuming a conservative estimate of the facility being called to run often and meeting all of its bonus targets and no penalties incurred under the terms of the agreement. This agreement with AES also includes a provision that lowers the capacity payment amount if the facility is subject to intake water regulatory requirements from the Los Angeles Regional Water Quality Control Board that reduce its output.

3. AES Huntington Beach Agreement

On April 21, 2023, DWR and AES executed a capacity agreement in which DWR will pay AES fixed monthly capacity payments to maintain the availability of AES Huntington Beach Unit 2, which total 226.8 MW from January 1, 2024 through December 31, 2026. The agreement is contingent on the SWRCB extending the OTC compliance deadline. Although the payments are fixed, they are also shaped to be higher in the peak months (May through October) and lower in the off-peak months. The peak month rate is $10.95/kW-month and the off-peak month rate is $8.95/kW-month. The agreement includes a penalty and bonus system based on the performance of the facility if and when it is called by the CAISO to respond to an extreme event. Therefore, the estimated cost of the AES Huntington Beach, LLC agreement to the ESRRF is up to $105,799,596—based on the facility being called to run often and hitting all of its bonus targets and no

penalties incurred under the terms of the agreement. This agreement with AES also includes a provision that lowers the capacity payment amount if the facility is subject to intake water regulatory requirements from the Santa Ana Regional Water Quality Control Board that reduce its output.

Table 1: Extended Operations of Retiring Facilities

Counterparty	MW	Allocated Budget
AES - Alamitos	1,141.2	Up to $528,616,081
AES – Huntington Beach	226.8	Up to $105,799,596
GenON	1,491.3	Up to $558,011,387
Total	**2,859.3**	**Up to $1,192,427,064**

V. Anticipated Future Investments

AB 178, AB 180, and AB 205 were signed into law on June 30, 2022. Since the legislation was created to address extreme events that negatively impact electric reliability, DWR immediately took action to deploy resources for the summer. In about two months, the ESSRRP successfully deployed new temporary emergency generation and incremental energy used to keep the lights on in the record setting heat wave in early September 2022.

There are, however, limitations in what ESSRRP is allowed to procure as set forth in Water Code Section 80710. For example, the ESSRRP may consider new energy storage resources of 20 MW or more but shall prioritize investments that do not compete with generating facilities already planned for development and disclosed by load-serving entities or local publicly owned electric utilities. (Water Code § 80710, subd. (e)(3).) Further, any resource in the ESSRRP that uses fossil fuels, such as stand-alone battery storage that charges directly from the grid, can only be operated as necessary to respond to an extreme event. (Water Code § 80710, subd. (c).) At the same time, load serving entities are actively pursuing these same resources, which are negatively affected by global supply chain and other delays, to meet traditional planning requirements.[8] Furthermore, stand-alone storage is now eligible for incentives under

[8] Kootstra, Mark, and Nathan Barcic (CPUC). 2023. Joint Agency Reliability Planning Assessment. California Energy Commission. Publication Number: CEC-200-2023-002.

the Inflation Reduction Act (H.R. 5736) and do not need to be paired with renewable resources.[9]

Given these challenges, DWR has issued three separate requests for information (RFIs) to help prioritize zero and low-emission resources for the ESSRRP. DWR will use responses to these RFIs to inform future investments into viable resources that can come online by summer 2024 to address extreme events that negatively impact electric reliability. The aim is to receive sufficient feedback to issue one or more requests for proposals. The RFIs seek responses from:

- Clean, zero-emission generation – The goal is to broadly consider commercial generation technologies that do not use fossil fuels, can be quickly deployed, and reliably generate during extreme events.
    - Available at: https://caleprocure.ca.gov/event/3860/0000026938
    - Deadline for submission of responses to RFI by 5:00 PM P.T. on July 14, 2023.

- Energy storage systems – The goal is to broadly consider storage systems across different commercial technologies that can be quickly deployed and discharge energy during extreme events.
    - Available at: https://caleprocure.ca.gov/event/3860/0000027365
    - Deadline for submission of responses to RFI by 5:00 PM P.T. on August 7, 2023.

- Fossil fuel-powered generation – In case insufficient responses are provided in the other two RFIs, DWR may consider fossil fuel-powered generation but would seek technologies that at minimum meet a standard similar to the CARB's statewide Distributed Generation (DG) Certification Program, which certifies electrical generation technologies that are exempt from the permit requirements of air pollution control or air quality management districts.[10]
    - Available at: https://caleprocure.ca.gov/event/3860/0000027523
    - Deadline for submission of responses to RFI by 5:00 PM P.T. on August 18, 2023.

[9] See Inflation Reduction Act of 2022 at https://www.congress.gov/bill/117th-congress/house-bill/5376/text.

[10] California Air Resources Board. Executive Order DG-052. *Distributed Generation Certification of Enchanted Rock LLC NGE21.9L-CA Generator*. August 2021. https://ww2.arb.ca.gov/sites/default/files/2022-05/DG-052.pdf

In addition to the RFIs, ESSRO staff have worked closely with CEC, CPUC, CARB, and CAISO staff to better understand the state of viable clean resources that can be deployed under short timelines to address extreme events. Furthermore, DWR is taking proactive actions to mitigate delays such as working with potential site partners to identify interconnection availability and site access for "shovel ready" projects, close coordination with CEC staff on CEC's Article 5 certification process and ways to ensure potential applicants are as prepared as possible, and continued dialog with load serving entities to understand if and when their procurement priorities change.

In the meantime, ESSRO staff are also taking steps to extend emergency resources procured outside of the ESSRRP. The State Power Augmentation Program (SPAP) was developed in response to Governor Gavin Newsom's Emergency Proclamation issued July 30, 2021.[11] DWR, CEC, and CAISO partnered together to quickly procure, install, and deploy 120 MW of new generation by September 2021 to be available for extreme heat events, wildfires, or any other climate-driven energy emergencies. The 120 MW are comprised of four temporary natural gas turbine generator units at existing power generation sites located in Yuba City (two units) and Roseville (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 current agreements allow the units to remain available for operation until the end of 2023.

DWR is currently in negotiations with both facility operators to determine the feasibility of extending operations of both sites—Calpine Greenleaf 1 at Yuba City and Roseville Energy Park in Roseville—to retain the 120 MW of capacity within the ESSRRP. DWR anticipates continuing these negotiations and executing extension contracts over the next several months before the current agreements expire.

Lastly, DWR has voluntarily declined to pursue any diesel generation ahead of the Water Code deadline of July 31, 2023.

[11] 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