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OVERSIGHT HEARING

Balance of Power: Electricity Reliability, Affordability, Clean Energy Development, and Expanded Energy Markets

1021 O Street, Room 1200
Tuesday, August 4, 2026
2:00 pm

“Electricity is really just organized lightning.”

--- George Carlin, comedian and author (from his book *Napalm and Silly Putty* (2001))

Balance of power is a critical function related to the physics of electricity that requires supply (generation) and demand (consumption) are matched in real-time to maintain electric grid operations. Electric grid operators must maintain the balance of supply and demand in an ever-complex system of diverse retail sellers and generators, including variable energy resources. The excessive loss of balance can, in worst case scenarios, result in uncontrolled widespread cascading power blackouts. In California, the risks to losing this balance have in recent years been of the greatest concern in the summer months, particularly in the late summer evening hours during extended extreme heat events that affect large areas of the state and broader region of the country, though the state has largely avoided widespread cascading outages¹. However, in late summer 2020, for the first time in 20 years, the state’s largest electric grid operator unexpectedly implemented rotating, controlled electricity outages to prevent uncontrolled cascading blackouts. (These incidents are distinct from localized outages due to a storm, car crashing into a utility pole, transformer outage, proactive power shutoff to address safety or wildfire risks, or other distribution-level outage.) The events occurred during an

¹ A 2011 cascading blackout, the Southwest Blackout, affected the San Diego-Tijuana region and was associated with work being performed on a transmission line in Arizona.

extended west-wide heat wave as demand for electricity – including for air conditioning – exceeded the available supply on the bulk power system. While the outages were limited and controlled, they raised concerns about the risks to the electric grid of further events. They also required many contributions and coordination among all stakeholders to conserve grid power and limit their use during the extended multi-day heat event, including calls for conservation from individuals, many who were isolating at home to protect against the spread of COVID-19 in the 100+ Fahrenheit degree weather. From the 2020 experience, the Governor, Legislature, state energy entities and numerous stakeholders engaged to address risks of future related events. These efforts have culminated in various budget, regulatory, and legislative policies to mitigate against the risks of future outage events and has become the subject of an annual oversight hearing by the committee since 2021.

As we are six years out from the 2020 events, today’s hearing provides an important opportunity for members of this committee to receive updates on addressing reliability, while considering affordability, in the immediate and longer horizon from the key energy agencies and electric grid operators. Specifically, the California Public Utilities Commission (CPUC) and California Energy Commission (CEC), as well as, the state’s largest electric grid operator, the California Independent System Operator (CAISO), and the Department of Water Resource (DWR) who has more recently been tasked through budget and policy actions with specific energy-related duties. The state entities have been asked to provide updates on:

- The near-term reliability concerns for this summer just as we are in the midst of an extended heatwave in much of state, including the continued role of the Electric Supply Strategic Reliability Reserve (ESSRR) funded by the state budget.
- Looking beyond this summer, this committee has requested an update on the mid-term outlook for reliability, clean energy procurement and build-out needed to address the state’s energy load while working to achieve the state’s clean energy goals. This should include the status of the central procurement function authorized by AB 1373 (E. Garcia, Chapter 367, Statutes of 2023) which allowed DWR to procure long-lead time resources if the CPUC makes a request to do so.
- Relatedly, this committee will want to hear how the state’s clean energy planning is affected by the pending end dates (2029 and 2030 for each unit) by when Diablo Canyon Nuclear Power Plant (DCPP) is authorized to operate.

- The committee has also requested the CAISO provide an update on the recent launch of the extended day-ahead market (EDAM) and a report on significant tariff or developments as required by the AB 825 (Petrie-Norris, Chapter 116, Statutes of 2025) which also authorized the CAISO and electrical corporations to participate in an independent voluntary energy market no sooner than January 1, 2028, if certain determinations and conditions are met.
- Lastly, the balance of power title also reflects changes at the federal level under the Trump Administration, including the impacts to federal tax credits and policies for clean energy resources that California is pursuing to achieve its carbon reduction goals. Importantly, committee members should be aware of recent U.S. Supreme Court decisions regarding the ability of a President to remove members of independent commissions and boards, potentially affecting decisions by energy-related commissions, such as the Federal Energy Regulatory Commission (FERC) who oversees energy markets and transmission.

BACKGROUND

Californians rely on electricity to power not only lights, but also: air conditioning, refrigeration for food and medicine, to filter and pump water supply, to maintain connectivity and communications, to operate traffic signals, and medical equipment to sustain life, and many other purposes. In short, electricity has become an essential service to support modern life. Therefore, any unexpected (and even expected) loss of power can pose inconveniences, challenges, and potential harm, though in most cases, the duration and frequency of the outage generally contributes most to the level of impacts. Residents and businesses may often be unaware of the cause of an outage, as causes can vary from planned and unplanned maintenance, equipment failure, preventative safety measures, vehicles crashing into utility poles, impacts from weather and fires, as well as constrained or inadequate generation supply or transmission. These causes can be at the local distribution circuit or substation, the transmission line, or more widespread on the electric grid. However, today's hearing is focused on the reliability of the bulk power system with a specific focus on the need to ensure sufficient energy supply to meet demand.

The Need to Focus on Reliability

In recent years, California has experienced challenges maintaining sufficient energy supply on the electric grid during widespread extreme heat events, generally in the late summer. These electricity reliability challenges have been

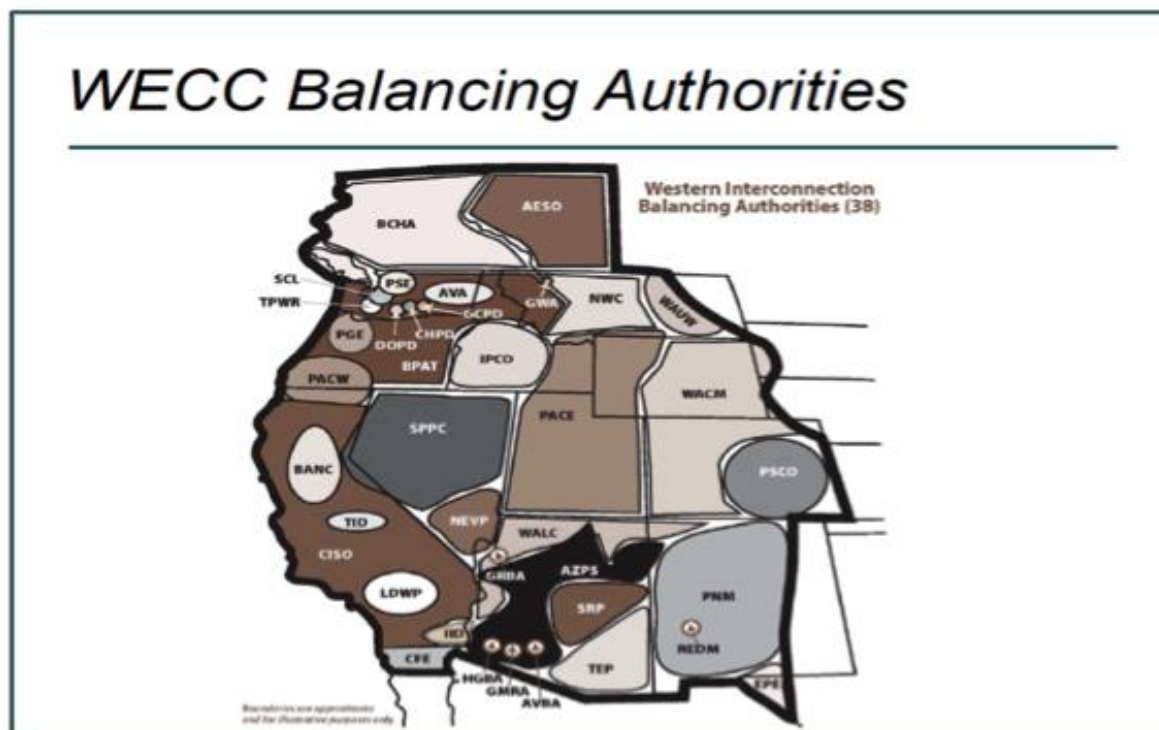
further complicated as the state undergoes a period of transition towards a zero-carbon future. The most acute predicaments have been during the evening hours when demand for electricity remains high (and may peak for the day) largely due to the need to run air conditioners to keep cool, along with other electricity demands. Balancing the power – managing the electric grid during these late hours of the afternoon and evening can be made more difficult by the new mix of generation resources supplying electricity to the electric grid. State policies to advance renewable energy and to meet a zero-carbon future require increasing percentages of renewable energy, including those that are variable, particularly solar and wind, which may not be producing during the peak hours. The deployment of distributed energy resources (DERs) can help reduce the demands on the electric grid, but can also contribute to the peak demand as the energy from the DERs may no longer be generating and forcing customers to rely on the electric grid (for example customers with rooftop solar without battery storage). Additionally, local and state policies to mitigate climate emissions are driving towards increasing electricity demand – quite literally – as the transportation sector is increasingly required to shift away from fossil fuels to cleaner carbon sources, especially electricity-fueled vehicles, while additional policies shift building operations from natural gas and other fossil fuels towards electrification. The growing development of artificial intelligence is further increasing electricity demands needed to operate computing systems. Moreover, California has policies that authorize local governments who elect, and in more limited, but significant cases, private companies, the ability to procure electricity resources, known as community choice aggregators (CCAs) and electric service providers (ESPs), respectively. CCAs and ESPs serve as competitors to procurement by investor-owned electric utilities (IOUs) whose service territories account for roughly 75 percent of the state with the remaining served by publicly owned utilities (POUs) and smaller electric cooperatives. CCAs and ESPs combined serve over 50% of the retail load within the combined electric IOUs’ service territories. The fragmentation of procurement by a mix of entities managing procurement decisions for their given load provides more local and customer decision-making, but also creates challenges towards a seamless transition to meeting the state’s renewable energy and zero-carbon energy resource goals while ensuring electricity reliability. Additionally, the tightening of the resource adequacy (RA) market with requirements for increased planning reserve margins, the state procuring resources to serve as insurance, and limited imports (particularly the limited out-of-state hydropower resources due to drought conditions in the northwest and Canada) is likely further increasing prices for all ratepayers.

Balancing Authorities (BA). A “balancing authority” is an entity responsible for managing the transmission of high-voltage electricity across long-distance

transmission lines. Maintaining the electric grid necessitates the need to balance supply and demand in real-time (24 hours, 7 days a week), otherwise the entire system is at risk of shutting down. A BA has several ways to maintain the balance of supply and demand, from turning on or off generators, to encouraging conservation, to importing or exporting excess electricity to or from their neighboring BAs, or if needed, voltage reductions (referred to as “brown outs”), and rotating outages where each set of distribution feeders is interrupted for a limited time (usually 20-30 minutes) and then they are put back in service and another set is interrupted, rotating outages among individual distribution lines.

The CAISO oversees the largest BA area in California, overseeing management of the electric grid for 80% of the state. (In addition to its BA responsibilities, the CAISO also oversees wholesale electricity markets, as detailed further below.) Other BAs in California, include Los Angeles Department of Water and Power (LADWP), Balancing Authority of Northern California (BANC) (which includes Sacramento Municipal Utility District), Turlock Irrigation District, and Imperial Irrigation District. Unlike the CAISO, most of these BAs are vertically integrated publicly owned electric utilities who operate their own electric grids, balancing supply and demand for their own electric load.

There are 38 separate BAs operating across the interconnected western United States (known as the Western Interconnect, or WECC), as shown below:



When electric grid interruptions or disturbances are unplanned, uncontrolled, and spread over a wide area of the system, they are referred to as “cascading blackouts.” These blackouts cannot be restrained from spreading beyond a particular area and can cause widespread, and extended duration disruption. Such a disruption occurred in 2011 in the southwest resulting in the loss of power due to work on a transmission line in Arizona that affected nearly seven million people over 9+ hours, including over 1.4 million in San Diego County. The San Diego-Tijuana region was particularly hard hit, as the loss of power paralyzed the region with snarled traffic, immovable trains, inability to pump at gas stations, and many other impacts.

When supply and demand are challenged, the CAISO can use notifications to alert generators, utilities, and customers about potential controlled outages and the need to conserve. Specifically, the CAISO may call for:

- **Flex Alert** – A call to customers to voluntarily conserve electricity when the CAISO anticipates that energy supply may not meet demand.
- **Restricted Maintenance Outage (RMO)** – CAISO will caution utilities and transmission operators to avoid taking grid assets offline for routine maintenance to assure availability of generators and transmission.
- **Energy Emergency Alert (EEA) Watch** – The CAISO analysis shows all available resources are committed or forecasted to be in use and energy deficiencies are expected. Consumers are asked to conserve.
 - **EEA 1** – Real-time analysis shows all resources are in use or committed for use, and energy deficiencies are expected. Consumers are asked to conserve.
 - **EEA 2** – CAISO requests emergency energy from all resources and has activated emergency energy programs. Consumers urged to conserve energy.
 - **EEA 3** – CAISO is unable to meet minimum reliability reserve requirements and has declared the initial step of an EEA 3. Utilities must prepare for controlled rotating outages, but outages have not been ordered.
 - **EEA 3 Ordering Rotating Outages** – the CAISO has ordered utilities to begin rotating outages to protect grid reliability (and attain balance). [Previous to 2022, grid operators called for Stage 2 Emergencies, but those have been replaced by the EEA 3 Outages.]

Recent history with controlled and limited disruptions and supply constraints. The more recent events in California since August 2020 have been challenges with

constrained supply during very limited hours and days in the late summer when extreme heat has affected a wide area, particularly in the evenings as solar resources decline but demand (particularly driven by air conditioning) continues to peak. These events have largely occurred in the late summer months. As noted in the table below, there were no emergency event days called by the CAISO in 2025. This may be the success of the various policies implemented to secure sufficient resources and also a combination of more mild summer weather in 2025.

CAISO Emergency Event Days (Source: CEC CERRO 2026 Appendix A-3 from CAISO)								
Year	Flex Alert	RMO	EEA Watch	EEA 1	EEA 2	EEA 3	Stage 2	Total Days
2021	6	12	0	3	0	0	1	22
2022	11	15	9	6	4	1	0	46
2023	0	6	2	1	0	0	0	9
2024	0	18	1	0	0	0	0	19
2025	0	0	0	0	0	0	0	0

- Summer 2020 - Western United States Heatwave.* From August 14 through August 19, 2020, the western United States suffered an intense and prolonged heatwave affecting many areas across the Western Interconnection (the electrical grid in the western portion of the country, roughly from the Rockies and Great Plains to the western shore). During this time, Death Valley set a record for the hottest temperature ever recorded on Earth – 130 degrees Fahrenheit on August 16! The heatwave resulted in temperatures 10-20 degrees higher than normal, including higher than normal overnight temperatures. Electric generation and transmission capacity was strained to keep up with the increased electricity demand – setting a peak demand record in the Western Interconnection of just over 162,000 megawatts (MW) on August 18, 2020. Many BAs were forced to declare energy emergencies as they were unable to meet their load obligations, including the CAISO and five BAs outside California. Within the CAISO, utilities were forced to shed load – via rotating outages – to help balance the electric grid. The outages ranged from 8 minutes to 2.5 hour durations, depending the utility, while affected customers experienced between 8 minutes to 20 minute outages.
- Summer 2021 – Bootleg Fire Impacts Transmission.* On July 9, 2021, in the midst of a western heat wave, the Bootleg Fire in southern Oregon compromised a transmission line coming into California, dramatically reducing the amount of electricity coming into the state from the Pacific Northwest, an important source of imports for California. As California

relies on imported electricity to meet anywhere between 20-30% of its power needs, the loss of this asset on top of the forecasted heatwave led to very tight electric grid conditions from July 9-11, 2021. Due to the contingency measures put in place following the 2020 heat event, no rotating outages were called.

- *Summer 2022 – 10-Day Labor Day Weekend Heatwave.* Over the Labor Day Weekend 2022 and extending beyond (August 31-September 9), California experienced another record heat wave, with temperatures throughout the state exceeding triple digits. On September 6, 2022, CAISO's system demand exceeded 52,000 MW, setting an all-time record. (For context the peak in 2020 was 47,121 MW; for 2021 it was 43,982 MW.) Tuesday, September 6th was marked by extremely tight electric grid conditions. In an unprecedented action, the Governor authorized the use of a statewide wireless emergency alert (WEA) sent at 5:48 p.m. to 27 million Californians by the Office of Emergency Services as a last-ditch effort to prevent the need to call rotating outages. The text alert likely contributed to almost 1,200 MW of demand reduction in five minutes. However, the effectiveness of text alerts to request emergency energy conservation can diminish if the public becomes wary of their use, as can be the case for other uses of emergency alerts or calls for conservation. Moreover, their performance can be difficult to accurately measure as other factors and conditions may contribute to the load reduction. Additionally, other measures authorized for the September 2022 heat event by two executive orders helped reduce demand for electricity by suspending various air quality restrictions that authorized the use of some natural gas power plants, ships at port that switched from shore power to burning bunker fuel, and customer reliance on diesel and natural gas generators.
- *July 2023 CAISO Issues Electric Grid Emergency Alerts.* On July 20th, the CAISO issued EEA 1 and on July 25th and 26th, the CAISO issued EEA watches for the electric grid. These were unexpected alerts warning that energy supply could be constrained on the electric grid. The CAISO restricted maintenance operations warning utilities and generators to not take electric grid assets offline.
- *July 2024 CAISO has issued several restricted maintenance operations and transmission emergency notices.* These notices have been issued mainly due to high temperatures and/or wildfire impacts.

Budget and other energy “insurance” actions. The Legislature, in collaboration with the Newsom Administration, adopted several measures throughout 2022, in addition to previously adopted measures, to continue to help shore up California’s electricity supply against the impacts from extreme events. These measures are noted in the table with additional details provided below. (Important note: Not included are CPUC procurement orders and other state budget funding to support development of new energy resources, such as long-duration storage, offshore wind, geothermal, and hydrogen. Also not detailed are the plethora of transmission-related efforts to streamline and expedite transmission and interconnection build-outs and approvals to support achieving the state’s clean energy targets and reliability needs.)

Program	Agency	State Budget/Ratepayer Funding	Status
Electricity Supply Strategic Reliability Reserve Program	DWR	\$2.37 billion State Budget	Contracts underway (more detail below).
Demand Side Grid Support Program	CEC	\$109 million State Budget (recent augmentation of \$22 million for this year)	Launched August 2022 and affected by Budget.
Distributed Electric Backup Assets Program	CEC	\$150 million from State Budget for grid assets. \$46.1 million from Proposition 4 proposed for microgrids.	Awarded \$86 million to POUs and UC for grid assets. \$46 million in development.
Diablo Canyon Nuclear Power Plant	CPUC and Various	Ratepayer and \$1.4 billion State Budget loan.	Licensing pursued and secured of Nuclear Regulatory Commission; initial federal funding approved; CPUC authorized. Loan repayments are still a concern.

Clean Energy Reliability Investment Plan	CEC	~\$1 billion State Budget, appropriations needed	Plan developed and adopted. \$100 million budgeted (including \$32 million for DWR central procurement mechanism). No additional appropriations.
Emergency Load Reduction Program	CPUC	~\$186 million in 2022 and 2023 (intended as five-year program) Ratepayer funded.	Launched in 2021.
Smart Thermostat Incentive Program	CPUC	\$22.5 million Ratepayer funded.	Launched in 2022.

Electricity Supply Strategic Reliability Reserve Program (ESSRRP) at the DWR (funded at \$2.3 billion). In June 2022, Budget Trailer Bills, AB 205 (Committee on Budget, Chapter 61, Statutes of 2022), AB 178 (Ting, Chapter 45, Statutes of 2022), and AB 180 (Ting, Chapter 44, Statutes of 2022), were signed into law. These three pieces of legislation collectively established the ESSRRP and set forth new responsibilities and activities by DWR, funded by the newly established Electricity Supply Strategic Reliability Reserve Fund (ESSRRF), and separate from the State Water Project. DWR acts as an electric grid reliability backstop for the state of California by procuring and providing incremental power during extreme events. DWR established temporary energy resources and created a new deputy director-level division with 25 staff – the Division of Statewide Water and Energy – which oversees the ESSRRP along with the State Power Augmentation Program which was developed in July 2021 in response to executive order direction to quickly deploy 120 MW of new generation. Under the ESSRRP, DWR acts as contingency insurance to help maintain electricity reliability. As part of the program, DWR contracts directly with power facilities and also enters into agreements with the state’s large electric IOUs to reimburse for the value of imported firm energy resources to support summer reliability.

DWR secured 1,646 MW from imported energy for summer 2022 with a maximum budget of \$150 million. In response to Governor Newsom’s Emergency Proclamation issued July 2021, DWR secured contracts to procure, install, and license four temporary natural gas turbine generator units totaling 120 MW at existing power generation sites located in the Cities of Roseville (two units owned

by Roseville) and Yuba City (two units owned by Calpine). These units were operational on September 22, 2021, and during the September 2022 heat wave, as such, they are expected to receive ESSRRF payments. Current agreements allow the units to remain available for operation until the end of 2027 and 2028, respectively. DWR also contracted for other resources, including a gas plant owned by California State University at Channel Islands and Enchanted Rock Electric LLC for three separate plants operating in local POU service territories within the San Joaquin Valley (City of Lodi, Modesto Irrigation District, and Turlock Irrigation District). Additionally, DWR entered into contracts for capacity from three natural gas plants subject to the once-through-cooling regulations by the State Water Resources Control Board (SWRCB) – AES Alamitos, AES Huntington Beach, and Ormond. The SWRCB has voted to extend the compliance dates for these facilities to adhere to the Once-Through Cooling (OTC) regulations (as proposed by the Statewide Advisory Committee on Cooling Water Intake Structures). Importantly, there are limitations on the effluent releases of the plants. As such, the plants could be available on standby for extreme events beginning in 2024 through 2027. DWR has also entered into an agreement with PG&E, the owner and operator of the DCPD to secure necessary funding for fuel purchases and management to maintain the option of extending the use of the facility (hinged on extended licensing) beyond the current retirement dates. As of the May 1, 2026, Progress Report to the Legislature (the most recent report), just over \$1.1 billion has been disbursed as of February 28, 2026, of the \$1.8 billion of the committed funds.

Demand Side Grid Support (DSGS) Program at the CEC. Provides customer performance incentives (with no penalties) to reduce net electricity load during extreme events. In the summer of 2022, utilities began enrolling participants in the program, which pays customers to reduce their energy usage during summer peak evening hours (May to October) when the electric grid is strained. The program is intended to help reduce the risk of rotating outages. The CEC has reported enrolling over 700 MW for the program and recent budget augmentation may expand the enrollment.

Distributed Energy Backup Assets (DEBA) Program at the CEC. Provides incentives for certain DERs that can be used to support the state's electrical grid during extreme events. The program is intended to fund zero- or low-emissions technologies such as fuel cells and energy storage at both existing energy facilities and new facilities. However, the program is now shifting to funding microgrids.

Emergency Load Reduction Program (ELRP). The ELRP is a five-year pilot program designed to pay electricity consumers for reducing energy consumption or

increasing electricity supply during periods of electrical grid emergencies. The purpose of the ELRP pilot is to offer a new tool for the electric grid operator and electric IOUs for reducing energy consumption during a grid emergency to reduce the risk of electricity outages when the available energy supply is not sufficient to satisfy the anticipated electricity demand.

New Smart Thermostat Incentive Program. Provides incentives to install smart thermostats in hot climate zones. The smart thermostats allow customers to reduce air conditioning usage a few degrees during critical times and get paid for the energy savings, with special protection for low-income customers.

DCPP operations extended through 2030. SB 846 (Dodd, Chapter 239, Statutes of 2022) authorized the extension of the DCP—which was scheduled to retire by 2025—through 2030. DCP is California’s sole remaining operating nuclear power plant, and the state has identified it as a valuable near-term source of zero-carbon energy during the transition to greater renewable resources with 2,240 MW of generation. While the legislation authorized an extension, DCP still has to receive required permits at the local, state, and federal levels in order to continue operations, and satisfy the various requirements detailed in SB 846. DWR executed a loan agreement of up to \$1.4 billion with Pacific, Gas & Electric (PG&E), the owner of the plant, to facilitate a five-year extension of the operating period of the plant (to November 2029 Unit 1 and August 2030 for Unit 2). On January 17, 2024, the US Department of Energy (DOE) announced the signing of the credit award and payment agreement with PG&E to finalize terms for \$1.1 billion in credit payments via the Civil Nuclear Credit (CNC) Program for the DCP. The credits are slated to be paid in installments for a four-year period of performance from 2023 through 2026. According to DWR’s February report to the Legislature, DWR has distributed \$1.3 billion to PG&E, with \$851 million of costs validated through March 31, 2025, and \$300 million is attributed to performance-based disbursements validated through April 30, 2025. According to the February report, DWR forecasts \$741.4 million from the DOE Civil Nuclear Credit Award and Payment Agreement, which may be increased up to the maximum of \$1.1 billion award.

Clean Energy Reliability Investment Plan (CERIP) to support investments that address near- and mid-term reliability (\$1 billion). SB 846 also included legislative intent to provide a total of \$1 billion from the General Fund from 2023-24 through 2025-26—\$100 million in 2023-24, \$400 million in 2024-25, and \$500 million in 2025-26—to support the CERIP, which CEC recently updated. The legislation required the plan to support investments that address near- and mid-term reliability needs and the state’s greenhouse gas (GHG) and clean energy

goals. The plan adopted by the CEC incorporates a combination of planning and enabling structures to support clean energy deployment and augmenting for extreme events for the first year \$100 million funding. Of this amount, \$32 million is directed to DWR to stand up a central procurement mechanism. This funding was adopted in the state budget, AB 102 (Ting, Chapter 38, Statutes of 2023). No further appropriations have been made.

Existing Reliability and Procurement Processes

The budget policy and appropriation actions are intended to augment the existing demand forecasting, energy resource planning, energy procurement, and additional efforts already underway as part of the state's ongoing efforts to address electricity reliability. These includes programs to direct procurement and RA of the state's electric IOUs, CCAs, and ESPs. Currently, there are about 25 CCAs and 10 ESPs serving load in the state, per the *CPUC's June 2024 CCA and ESP Formation Status Report*. CCAs serve roughly 38% of the state's retail load and ESPs serve 16% - combined they serve 54% of the state's retail load.

Integrated Energy Policy Report (IEPR). The IEPR provides a cohesive approach to identifying and solving the state's pressing energy needs and issues. The report, which is crafted in collaboration with a range of stakeholders, develops and implements energy plans and policies. SB 1389 (Bowen and Sher, Chapter 568, Statutes of 2002) required the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The CEC is then required to use these assessments and forecasts to "develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety." The CEC adopts an IEPR every two years and an update every other year.

Resource adequacy. Following the California energy crisis of 2000-01, the California Legislature enacted legislation to prevent future incidents of widespread blackouts and rolling brownouts due to lack of electric generating capacity. Among the reforms adopted in response to the crisis was the adoption of Public Utilities Code §380 as an effort to better ensure reliability of electric supply. The statute directs the CPUC, in consultation with the CAISO, to establish RA requirements for all load-serving entities (LSEs), including electric IOUs, ESPs, and now includes CCAs, which did not exist at the time of the crisis.

The current RA program consists of system, local, and flexible requirements for each month of a compliance year. In October of each year, LSEs must demonstrate

that they have procured 90% of their system RA obligations for the five summer months (May-September) of the following year, as well as 100% of their local requirements, and 90% of their flexible requirements for each month of the coming compliance year. The CPUC has adopted changes to RA, including increasing the planning reserve margin to 17% by 2024 for all LSEs and in the case of electric IOUs upwards of 20-22%. Additionally, the CPUC has initiated a 24-hour slice-of-day RA framework to require LSEs to satisfy RA in each hour of the day (2025 was the first year for the slice-of-day framework).

Cost Allocation Mechanism. Current law ensures the costs associated with the RA program are recovered on a non-bypassable basis, a process called the Cost Allocation Mechanism (CAM). The CAM is a regulatory process for allocating capacity costs of utility procurement across all benefitting customers. The CAM was conceived in a 2004 CPUC decision, adopted in a 2006 CPUC decision (D.06-07-029), affected by changes in law (SB 695, Kehoe, Chapter 337, Statutes of 2009), and continues to be adapted to new issues and circumstances. The CAM is a fixture of the CPUC's Long Term Procurement policy and is based on the principle that costs and benefits of new generation should be shared by all benefitting customers within an electric IOU's service territory. The mechanism for CAM is a one-way tool; it exists for the IOUs to purchase resources on behalf of all who rely on the electric grid, including customers of ESPs and CCAs. CAM allows the IOUs to spread costs of generation resources to the other LSEs.

CAISO backstop procurement. If California RA rules fail to provide sufficient resources, the CAISO is compelled to utilize centralized backstop procurement mechanisms in order to maintain electric system reliability. Centralized backstop procurement is whereby the CAISO contracts with a generator to address the shortfall. Under FERC rules, the CAISO, like all other BAs, must ensure system reliability or face penalties by FERC. The CAISO has two mechanisms for centralized backstop procurement: Reliability Must Run (RMR) and Capacity Procurement Mechanism (CPM). A resource receiving RMR designation must continue to operate and is compensated by a rate set by the CAISO, per FERC approved tariffs. RMR contracts can be expensive relative to procurement through the CPUC process, especially considering their limited operating parameters. CPM can be used for resources that may be needed in the following year and where the resource is at risk of retirement. Like RMR contracts, CPM contracts are also often at a higher price relative to generation procured through the CPUC process. These costs are generally shouldered by ratepayers in the insufficient Local Capacity Area or by all ratepayers of the LSE(s) lacking the adequate RA.

SB 100 (De León, Chapter 312, Statutes of 2018). SB 100 established the state’s target to meet 100% of the state’s electricity retail load with renewable and zero-carbon resources by 2045. SB 1020 (Laird, Chapter 361, Statutes of 2022) established interim goals to meet the SB 100 target, specifically requiring 90% of retail sales by 2035, 95% by 2040 to be met with renewable and zero-carbon energy resources. SB 100 Joint Agency Report evaluates the challenges and opportunities in implementing SB 100. It includes an initial assessment of the additional energy resources and the resource building rates needed to achieve 100% clean electricity, along with the associated costs. It uses a computer model to analyze these factors under various conditions and technologies. The report is scheduled to be updated every four years. The first report issued on March 2021 identified preliminarily that on average the state may need six gigawatts of new renewable and energy storage annually to meet the SB 100 goals. The agencies are working on the 2025 report.

Integrated Resource Planning (IRP). SB 350 (De León, Chapter 547, Statutes of 2015) required each LSE —meaning an IOU, ESP, or CCA—to file a biennial IRP for approval or certification by the CPUC. The CPUC combines all LSEs’ IRPs to ensure the state is on its path to meet its clean energy procurement goals. POU’s are required to file their own IRPs with the CEC. The goal of the IRP is a two-year planning process to ensure that LSEs are meeting targets that allow the electricity sector to contribute to California’s economy-wide GHG emissions reductions goals that helps to reduce overall costs. The effort is intended to forecast needs on a 10-year horizon. In this regard, the IRP is a forward-looking activity. Whereas the requirements to meet renewable energy standards is a compliance activity to review whether LSEs and POU’s have satisfied their three-year compliance obligation under the Renewable Portfolio Standard (RPS) requirements to meet an increasing share of its retail load with eligible renewable energy resources, until achieving 60% by 2035. As part of the IRP process, the CPUC has issued several procurement orders on LSEs (summarized in the table below) to address near-term and mid-term procurement needs.

CPUC IRP Procurement Order	Total MW	Time Horizon (Calendar Years)
D. 19-11-016	3,300 MW	2021-2023
D. 21-06-035 Mid-Term Reliability	11,500 MW	2023-2028
D. 23-02-040 Supplemental	4,000 MW	2026-2027
<i>D. 26-02-057 (February 2026)</i>	<i>6,000 MW</i>	<i>2030-2032</i>
Cumulative Procurement	24,800 MW	2021-2028

AB 1373 Central Procurement

As noted above, the Legislature authorized DWR to serve as a central procurement entity, if requested by the CPUC, in order to procure certain long lead-time resources. In August 2024, the CPUC adopted a decision authorizing the procurement below by DWR (pending additional actions and reviews). It is not clear whether DWR is intending to solicit this procurement.

Resource Type	Maximum Quantity	Solicitation Beginning in	Online By
Long Duration Energy Storage: 12+ hours	1 GW	2026	2031-2037
Long Duration Energy Storage: multiple day duration	1 GW	2026	2031-2037
Enhanced Geothermal	1 GW	2027	2031-2037
Offshore Wind	7.6 GW	2027	2035-2037

Western Energy Markets

CAISO Western Energy Imbalance Market (WEIM). As part of its management of the wholesale electricity market, the CAISO also operates a voluntary WEIM which was established in 2014. The WEIM is a real-time bulk power trading market involving 22 participants across 10 western states (representing 79% of the load of the Western Interconnection) that trade the difference between the day-ahead forecast of power and the actual amount of energy needed to meet demand in each hour. Energy trade in the WEIM is limited and intermittent. Currently, the WEIM handles generation that a participating LSE considers surplus at the last minute.

Energy Day Ahead Market (EDAM). In addition to the WEIM, the CAISO is launched a voluntary EDAM in May 2026 with the participation of PacifiCorp and Portland General Electric and additional participants, including LADWP and BANC, committed to join in 2027. The EDAM is designed to deliver additional benefits to those realized in the WEIM through greater reliability coordination and resource optimization. The EDAM design was jointly approved in February 2023, and the associated tariff has been approved by the FERC. These tariff provisions aim to improve renewable integration and market efficiency through day-ahead scheduling and unit commitment across a larger area for expanded regional activity in the extended day ahead market that may not require governance changes of the CAISO. The expanded market is intended to increase reliability from greater

situational awareness and allow participants to share surplus renewable energy across a broad Western footprint.

Efforts to expand CAISO operations across the West. The Pathways Initiative is an effort to develop a West-wide energy market that includes California and other states, and which was the subject of an informational hearing last year by this committee and for which there was legislation adopted, AB 825 (Petrie-Norris). Pursuant to the legislation, the CAISO and utilities can participate in an independent energy market no sooner than January 1, 2028. The CAISO is required to provide an annual report to the legislature. Importantly, the CAISO initiated tariff changes in July 2025 to commit to the Step 1 of the Pathways Initiative allowing the energy markets governing board to have equal filing rights with FERC as the CAISO. This step did not require legislation. Currently, the stakeholders and CAISO are taking steps to fulfill the requirements of AB 825 in making specified determination prior to authorizing the participation of the utilities and CAISO in an independent regional energy market. CAISO Chair of the Governing Board and the CEO are available to answer any questions about this effort and their operations.

Important awareness of recent federal actions. Importantly, members of this committee may wish to receive an update on the impact of the various federal policies adopted under the Trump Administration that can impact California's reliability, affordability, and clean energy efforts. These include changes to the federal tax credits for clean energy resources (especially solar and wind) that could increase costs for customers. Additionally, there have been efforts by the Trump Administration to rescind funding that was allocated to the states, including California, much of which may be tied up in litigation against the federal government. Lastly, but importantly, the recent U.S. Supreme Court decisions, particularly *Trump v. Slaughter* (Decided June 29, 2026) Docket No. 25-333 where the U.S. Supreme Court voted 6-3 to overturn longstanding policy (Humphrey Executor) to limit the ability of the President to remove commissioners without cause from independent commissions. Although this case concerns the Federal Trade Commission, it has raised concerns that it may apply to most independent commissions, including the FERC who oversees energy markets and transmission. The concern is a President may remove a member of the commission without cause for not voting in a manner aligned with the President's policy, even as these commissions (including FERC) are composed of members of both parties and have historically been able to vote independent from the political changes in the White House.