

# Ensuring Grid Reliability for Summer 2021 and Beyond

Following the extreme heat wave of August 2020 and subsequent rotating power outages, the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and the California Independent System Operator (CAISO) are proactively [identifying challenges and solutions](#) for reliably decarbonizing the grid and to raise public awareness about electricity system needs.

A historic heat event impacted the western U.S. for several consecutive days in mid-August 2020, causing energy supply shortages that led to two rotating power outages in the CAISO footprint on August 14 and 15. The CAISO, CPUC, and CEC have embarked on a deep dive into the causes of the outages and the joint development of actions underway to prevent supply gaps in advance of summer 2021. Below is a summary of key actions taken and underway to prepare for this summer and for future summers to ensure electric grid reliability.

## Actions to Support Summer 2021 Reliability

### CPUC

**CPUC Summer Reliability Proceeding (R.20-11-003):** In February 2021, the CPUC [ordered](#) Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E), collectively known as the investor-owned utilities, or IOUs, to seek contracts for additional power capacity for availability by summers 2021. The IOUs subsequently submitted contracts totaling approximately 550 megawatts (MW) for CPUC review and approval. Along with the directives in 2021 that will result in more available resources to meet customer needs in 2021 and 2022.

In March 2021, the CPUC issued a [Decision](#) (D.21-03-056) directing the IOUs to procure additional resources to avoid the potential need for rotating outages in the summers of 2021 and 2022, including:

- Ordered utilities to procure a minimum of an additional 2.5 percent of resources for all customers in their territories, representing an effective increase of the **planning reserve margin** from the existing 15 percent to 17.5 percent. This will help ensure enough electricity resources are available to serve customers during times of peak and net peak energy use.
- Ordered PG&E, SCE, and SDG&E to pilot **an Emergency Load Reduction Program** that will give demand response providers and other companies

providing new services to manage electricity demand, the ability to demonstrate how their innovative programs can support the grid. The pilot program will compensate customers for voluntarily reducing demand on the power system when called upon to do so by the CAISO in the event of a grid emergency. This program will serve as a layer of insurance on top of existing resource adequacy plans and will give grid operators a new tool among the existing demand management programs to address unexpected power system conditions.

- Ordered utilities to modify their **Critical Peak Pricing programs**, which charge a higher price for electricity consumption during peak hours on selected days. We ordered several modifications to the Critical Peak Pricing programs to ensure the program is more effective and responsive to the critical hours of a grid emergency, including shifting the Critical Peak Pricing event window for residential and non-residential customers to the hours of 4 p.m. to 9 p.m., increasing the maximum number of Critical Peak Pricing events allowed per year, and providing customer education with a focus on increasing participation.
- Ordered modifications to existing **demand response programs** to expand participation, including temporarily allowing year-round enrollment in utility “interruptible programs” that allow for industrial and large commercial customers to pay a lower rate in exchange for allowing the utility to curtail their energy usage when energy demand is high and the reliability of the electric grid is threatened. The CPUC also increased demand response program enrollment incentives to attract new customers.
- Approved a new statewide **“Flex Alert”** program to educate consumers about the positive impacts of conservation, help customers understand grid conditions, and inform customers of the need to conserve when energy demand is high.

**Project Progress Tracking:** The CPUC is tracking progress on generation and battery storage projects that are currently under construction in California to ensure there are no CPUC-related regulatory barriers that would prevent them from being completed by their targeted online dates. As a starting point, in November 2020, the CPUC prepared an analysis and [slide deck](#) on new resources in development across multiple proceedings. The CPUC is also tracking project progress toward the 3,300 MW procurement ordered in a 2019 Decision ([D.19-11-016](#)). In February 2021, load serving entities that had elected to self-provide their procurement obligation from this order submitted status updates of their projects, and the CPUC is using this data to determine whether any projects have suffered delays or failure that necessitate backstop

procurement. In Q2 2021, the CPUC will release an aggregation of the data collected from Integrated Resource Plans filed by load-serving entities in September 2020. The data will include information on existing, development, and planned resources.

**Improve Load Scheduling Accuracy:** The CPUC is exploring technical solutions needed to allow its jurisdictional IOUs to provide customer usage data to community choice aggregators, and energy service providers more frequently to improve load scheduling accuracy.

## CEC

**Scoping of 2021 Integrated Energy Policy Report (IEPR):** The CEC adopted a formal scope for the IEPR in January and completed preliminary results of its summer 2021 reliability assessment. Final results will be published later this year.

**Efficiency Improvements to the Natural Gas Power Plant Fleet:** The CEC is coordinating with generators to make incremental upgrades to the existing natural gas fleet to increase their output this summer by as much as 100 MW.

**Research Deployment and Demonstration:** The CEC's research program is funding development and demonstration of load reduction technologies – starting this summer. The research objectives are to improve the demand reduction platform and expand users. These pilots anticipate achieving 25 MW of flexible demand. Two projects anticipated to achieve a cumulative ~18 MW of load shift during peak hours.

**Efforts to Maximize Demand Response:** The CEC convened two round table discussions with Demand Response Providers, CAISO, and the CPUC to discuss ways to maximize the contribution of demand response to summer reliability. The CEC is working with the CPUC to incorporate demand response recommendations into the 2021 IEPR.

## CAISO

**Market Enhancements for 2021 Summer Reliability:** The CAISO has embarked on a set of initiatives aimed at protecting summer reliability during prolonged heat events. The enhancements, approved by the CAISO Board of Governors in March, are designed to:

- Strengthen compensation incentives for hourly imports to deliver during tight supply conditions;
- Provide more accurate price signals reflective of tight supply conditions and dispatch of emergency demand response;

- Establish an interim minimum state of charge requirement to ensure resource adequacy storage resources have sufficient energy available on the tightest supply days;
- Ensure sufficient capacity is procured in advance of planned outages;
- Streamline the grid interconnection process to expedite new supply; and,
- Modify export, load, and wheeling priorities.

**Improve Performance of Demand Response Providers:** The CAISO is working with Proxy Demand Resources and Reliability Demand Response Resource providers to improve processes and performance expectations.

**Credits Against Resource Adequacy Obligations:** The CAISO continues to work with the CPUC, local regulatory authorities, and stakeholders to resolve issues around resources credited against resource adequacy requirements.

**Resource Adequacy Enhancements:** The CAISO is pursuing improvements to ensure planned outages are done without reliability risk and to ensure storage resources are used in alignment with reliability needs. The proposal also includes provisions to ensure storage resources are charged and available to meet reliability needs during tight supply periods. The CAISO is developing the plans through its public stakeholder process.

## **Actions to Support Mid- and Long-Term Reliability**

### **CPUC**

**Resources Already Under Development:** Prior CPUC actions dating back to 2016 will result in more than 8,000 MW of new resources coming online between the summer of 2020 and 2023.

**Replacement Resources for Diablo Canyon Retirement:** The CPUC directed all CPUC-jurisdictional Load Serving Entities to submit Integrated Resource Plans (IRP) that include procurement of their share of replacement power for the retirement of PG&E's Diablo Canyon Nuclear Power Plant. A Ruling was issued on February 22, 2021, containing analysis of the submitted plans as well as overall system resource adequacy. It recommends procurement in the 2023-2025 timeframe to replace the Diablo Canyon Nuclear Power Plant, other retirements, and the possible need for a more conservative planning reserve margin. A workshop was held on March 10, 2021 to explain the Ruling, and stakeholders will provide written comments.

**Integrated Resource Planning (IRP) Procurement Framework:** The CPUC hosted a workshop on a proposal regarding how the CPUC would order procurement to

complement the procurement by Load Serving Entities in response to the planning track activities of IRP and various CPUC procurement programs. This proposed framework is intended to provide a conceptual foundation for all future procurement informed by the IRP process. The proceeding timeline calls for a ruling in summer 2021 that will propose a Preferred System Portfolio (PSP), which is a portfolio of optimal new resources to be built over the next 10 years meant to guide resource planning, and any associated procurement that might be required. Whether the CPUC orders procurement in the PSP will be based in part on whether the aggregated electricity resources included in the individual IRPs submitted on September 1, 2020 show that more procurement of particular types of resources may be necessary to support fulfillment of the PSP for this cycle of IRP.

## **CEC**

**Scoping of 2021 Integrated Energy Policy Report (IEPR):** The scope of the 2021 IEPR will include longer-term issues such as the development of analytical products (updating forecasts to reflect extreme weather, statewide reliability, and resource sufficiency assessments beyond 2021) and workshops to support mid- to long-term electric reliability for the state.

**Flexible Demand Appliance Standards:** On December 14, 2020, the CEC held a workshop to inform a Rulemaking to establish standards and labeling requirements for appliances that promote flexible demand technologies, which can schedule, shift, or curtail electric demand of appliances to reduce greenhouse gases emitted from electricity generation. This Rulemaking was authorized by Senate Bill 49 (SB 49, Chapter 697, Statutes of 2019). Demand flexibility can also help manage energy costs and enhance grid reliability.

**CEC 2020 CA Electricity Demand Update:** The CEC adopted the California Energy Demand 2020-2030 Forecast Update on January 25, 2021. This update to the previously adopted electricity demand forecast incorporates an additional year of historical data, more recent economic and demographic outlooks, and revised vehicle electrification, self-generation and battery storage forecasts. It also includes revised hourly and monthly peak electricity demand for the CAISO control area. In addition to the standard peak forecasts (1-in-2, 1-in-5, 1-in-10, and 1-in-20 probability weather scenarios), the 2020 forecast update also includes a 1-in-30 peak forecast (reflecting a low probability weather scenario similar to the heat event experienced in August of 2020) for situational awareness and to help support future planning improvements.

## CAISO

**Resource Adequacy Market Rule Enhancements:** The CAISO has proposed a process for evaluating monthly Resource Adequacy supply plans and triggering backstop procurement if necessary. The CAISO proposal would revise counting rules for demand response, imports, and use-limited resources to more appropriately count their Resource Adequacy value. The CAISO Board of Governors is expected to consider the proposal early in 2021 for 2022 implementation.

**Energy Storage Enhancements initiative:** Stakeholder initiative process to collect feedback from industry sectors, particularly the storage resource community, on market redesigns aimed at integrating historic amounts of battery storage onto the grid.