



August 19, 2020

Governor Gavin Newsom
1303 10th Street, Suite 1173
Sacramento, CA 95814

Dear Governor Newsom,

We write in response to your letter from earlier this week regarding the power outages of August 14 and 15 that were triggered due to insufficient resources.

We agree that the power outages experienced by Californians this week are unacceptable and unbecoming of our state and the people we serve. We understand the critical importance of providing reliable energy to Californians at all times, but especially now, as the state faces a prolonged heat wave and continues to deal with impacts from the COVID-19 pandemic.

Californians have always responded to great disruptions with courage, determination, and creativity. This week was no exception. But it is unfair to make Californians endure disruptions that are within our reach to avoid. We, as individuals, and the organizations we lead, share in the responsibility for what many Californians unnecessarily endured. We also share in the commitment to pinpoint the causes and ensure they do not reoccur.

Your letter requests that our organizations provide information to understand the causes of the recent supply deficiencies and the actions that can be taken in the near and longer-terms to minimize power outages. These questions deserve a more thorough review and response from us in the coming days, but in the sections below we provide responses based on the information we have now.

Near-Term Energy Demand Forecast

In the near term, the California Independent System Operator (CAISO) expects that energy demand will remain high as the current heat wave persists. In the table below, the CAISO provides its most recent demand forecasts for August 20 through 24. The table shows forecasted demand for two times of the day when the demand on the grid peaks. The first is the peak load hour, which occurs from 5 to 6pm (peak load hour) and the second is when the demand on the system, net of expected wind and solar production, occurs which is from 7 to 8pm (net load peak hour) for each day:

Table 1: Short Term Demand Forecasts

Forecast Period	8/20	8/21	8/22	8/23	8/24
Peak Load Hour Demand	45,113	44,743	42,718	42,154	46,779
Net Load Peak Hour Demand	42,850	42,415	41,393	40,946	44,329

The CAISO estimates that August resource adequacy capacity provides approximately 46,000 megawatts (MW) of load carrying capability at the peak load hour, after considering estimated outages. This load carrying capability drops to approximately 43,000 MW during the net load peak hour. Based on these forecasts, there is currently a risk of resource insufficiency on Monday, August 24. If those projections materialize as forecasted, the CAISO will require economic import energy to meet system needs. If economic import energy is unavailable, it could lead to additional supply shortages. The CAISO will do everything it can to avoid service interruptions. As detailed later in this letter, significant efforts have been undertaken across the state in recent days to reduce demand and identify additional supply.

Lack of Advance Warnings for Supply Deficiencies

As the CAISO anticipated high loads and temperatures beginning on August 14, it issued an order restricting maintenance operations on August 12, an alert identifying a possible system reserve deficiency on August 13, and a Flex Alert for August 14. However, the situation deteriorated on the afternoon of August 14, with the unanticipated loss of supply and severe constraints on imports because of a developing, historic west-wide heat wave. The imbalance in supply and demand led to the need to order the utilities to turn off power to their customers later that evening. On August 15, the CAISO experienced similar supply conditions, as well as significant swings in wind resource output when evening demand was increasing. Wind resources first quickly increased output during the 4:00 pm hour (approximately 1,000 MW), then decreased rapidly the next hour. These factors, combined with another unexpected loss of generating resources, led to a sudden need to shed load to maintain system reliability. The combination of high system demand, unanticipated loss of supply, and low net import availability due to hot temperatures throughout the West created untenable system conditions. Although the CAISO could not have predicted the specific series of events that ultimately required power outages, better communications and advance warnings about tight supply conditions were possible, and should have been done. The CAISO is committed to improving its communications, and providing appropriate warnings of such circumstances.

Causes of Recent Supply Deficiencies

We are working closely as joint energy organizations to understand exactly why these events occurred. The grid conditions of August 14 and 15, with peak demands of approximately 47,000 MW and 45,000 MW respectively, were high but not above similar hot days in prior years. Given this, our organizations will need to conduct a deep dive into how we ensure sufficient electric supply, and will make modifications to our reliability rules to make sure reliability resources can be available to address unexpected grid conditions.

Assigning definite causes to events on the electricity grid requires careful analysis, which will take time, however, we do know a number of things already. We know that capacity shortfalls played a major role in the CAISO's ability to maintain reliable service on the grid. A major focus of our review will need to be on the joint organizations' process of determining the needed capacity.

The resource adequacy procurement requirements are set by the California Public Utilities Commission (CPUC), to be based on a 1-in-2 peak forecast, *i.e.*, an average year forecast. This forecast is developed by the California Energy Commission (CEC) based on an agreed-upon methodology between the CEC, the CPUC, and the CAISO. To account for contingencies such as outages, import variability, load forecast error, and reserve requirements, the program requires utilities to procure a 15% planning reserve margin above the monthly

peak load forecast. The rules take into account the fact that the grid needs both a sufficient quantity and quality of resources to meet demand. As the events of the past few days indicate, a review of how the organizations forecast hourly demand and set reserve margins is critical. The forecasts and planning reserves need to better account for the fact that climate change will mean more heat storms and more volatile imports, and that our changing electricity system may need larger reserves.

Another factor that appears to have contributed to resource shortages is California's heavy reliance on import resources to meet increasing energy needs in the late afternoon and evening hours during summer. Some of these import resources bid into the CAISO energy markets but are not secured by long-term contracts. This poses a risk if import resources become unavailable when there are West-wide shortages due to an extreme heat event, such as the one we are currently experiencing. The CAISO has observed that during the current heat wave, energy supporting imports from other Western utilities have been significantly constrained during the late afternoon and evening hours, as those other utilities must plan to meet their own demand and have limited ability to export supplies to California. This hampers the CAISO's ability to secure net import energy sufficient to meet evening ramping requirements.

After this heat wave passes, as directed in your letter, our organizations will perform a root cause analysis of the events of August 14 and the following days, to understand the cause of the resource shortfalls. The CAISO will collaborate with the CPUC and the CEC on this analysis, and to promote long-term action to avoid these types of events in the future.

Collectively, our organizations want to be clear about one factor that did not cause the rotating outage: California's commitment to clean energy. Renewable energy did not cause the rotating outages. Our organizations understand the impacts wind and solar have on the grid. We have already taken many steps to integrate these resources, but we clearly need to do more. Clean energy and reliable energy are not contradictory goals.

Our collective investigation will include, at a minimum, a review of the following:

- Resource sufficiency, including:
 - Level of resource adequacy requirements relative to grid loads and grid conditions,
 - Imports and exports and their impact on reliability during periods of system stress conditions,
 - Outages, derates, and resource performance during system stress hours,
 - Performance of resources supplied to grid operator by CPUC and non-CPUC jurisdictional entities,
 - Availability of CAISO import capability to CPUC jurisdictional entities;
- Transmission grid performance, including outages and availability constraints;
- Sufficiency of existing incentives and penalty structure for deterring non-performance of reliability resources;
- Demand forecasts and how they are utilized in resource planning;
- Review of interagency coordination on summer reliability planning and assessment;
- Challenges to contracting for the retention of gas fleet resources needed for reliability; and
- Market performance observations and opportunities.

Immediate Actions to Address this Week's Supply Deficiencies

Since August 14, a number of immediate actions have been taken to minimize disruption and increase reliability. A collective effort, led by you and your staff, created a massive statewide mobilization to conserve electricity and maximize existing generation resources. The efforts led to reductions in peak demand on Monday and Tuesday of nearly 4,000 MW and an addition of nearly 950 MW of available temporary generation.

Some specific examples of actions that were taken include:

Demand Side Conservation Actions

- The CAISO called on demand response programs and other available demand relief;
- The CPUC issued a letter on Monday, August 17th, clarifying use of backup generators in connection with specific demand response programs is allowable, which resulted in at least 50 MW of additional demand reduction each day;
- Solar and storage companies, including Sunrun and Tesla, worked with their customers to change battery charging patterns so that they are maximizing effectiveness between 4 and 9pm;
- The CEC coordinated with data center customers of Silicon Valley Power to move approximately 100 MW of load to backup generation facilities onsite;
- The CEC coordinated with the US Navy and Marine Corps to disconnect 22 ships from shore power, move a submarine base to backup generators, and activate several microgrid facilities resulting in approximately 23.5 MW of load reduction; and
- Six Electric Program Investment Charge (EPIC)-funded microgrids reduced load by a total of approximately 1.2 MW each day.

Supply Side Resources Actions¹

- The CAISO procured available emergency energy;
- The CAISO executed significant event Capacity Procurement Mechanism to procure additional supply resources;
- The CAISO Suspended a market feature to ensure physical certainty of solution;
- Department of Water Resources (DWR) and Metropolitan Water District (MWD) adjusted water operations to shift 80 MW of electricity generation to the peak period;
- DWR and the U.S. Bureau of Reclamation (USBR) shifted on-peak pumping load that resulted in 72 MW of load flexibility;
- The CEC worked with the City and County of San Francisco to maximize power output at Hetch Hetchy which allowed for an additional 150 MW during the peak period;
- The CEC worked with private power producers to contribute an additional 147 MW from the following sources: SEGS Solar Plant: 60 MW, Ivanpah Solar Power Plant: 42 MW, and Sentinel: 45 MW;
- PG&E deployed temporary generation, that was procured for public safety power shutoff purposes, across its service territory totaling approximately 60 MW;
- SCE worked with generators to ensure that additional capacity was made available to the system from facilities with gas onsite or through inverter changes; and

¹ The additional capacity highlighted in this section is part of the 950 MW of available temporary generation, but does not comprise the totality of the 950 MW.

- LADWP helped bring additional generation from Haynes 1 and Scattergood power plants totaling 300 to 600 MW

Conservation Messaging Actions

- The CAISO Issued Flex Alerts and warnings;
- The CAISO, CEC and CPUC supported the Governor's Office and the California Governor's Office of Emergency Services to publicly request electricity customers lower energy use during the most critical time of the day, 3:00 pm to 10:00 pm;
- The CPUC issued a letter to the investor owned utilities on August 16 requesting that they aggressively pursue conservation messaging and advertising, and requested Community Choice Aggregators do the same; and
- The CPUC redirected the Energy Upgrade California marketing campaign messaging and media outreach to focus on conservation messaging.

With these efforts, we hope to reduce or prevent immediate future outages to the greatest extent possible.

Going-Forward Actions to Ensure Reliability

Our organizations are committed to collaborating on longer-term solutions and to re-examining our forecasts and existing reliability policies and programs to avoid future supply shortfalls.

The CEC will continue to refine its demand forecast, which currently accounts for climate change, based on improving science and stakeholder engagement, and will expand its demand forecasting process to include a broader set of scenarios that capture extreme weather events and associated load impacts. New peak demand forecasts could be used in the CPUC's resource adequacy program, which currently requires a 1-in-2 peak forecast. In addition, the CEC will:

- Develop an aggregate statewide view of resource adequacy obligations and available resources serving those obligations.
- Continue work to enable distributed energy resources and load flexibility, including development of load management standards to support grid reliability.

The CAISO will review its assumptions regarding solar power and other sources of energy to ensure its assumptions of available capacity are accurate.

The CPUC will review its resource adequacy requirements, existing procurement plans and demand response programs. The results of the root cause analysis will better help to strengthen and inform this reassessment. Some of the work that will contribute to the holistic reassessment you request has already been initiated.

- In 2019, the CPUC tightened electricity import rules to ensure imports and all other resources the state relies on are actually delivered to California on peak days.
- The CPUC ordered 3,300 MW of new capacity to come online by 2023 to meet potential shortfalls that were identified when it adjusted assumptions to reflect that peak demand occurs later in the day.
- The CPUC opened a phase in its Resource Adequacy proceeding to consider changing the framework for determining reliability rules. These changes may be needed to adjust for the fact that community choice aggregators dominate the retail electricity market.

Beyond that, the CPUC will work to ensure that increasingly prevalent distributed resources can be efficiently activated to support the grid even if they do not qualify to provide reliability services.

With regard to your request to review the mix of imports and in-state generation, our organizations agree that further attention is required to ensure that these resources are available when needed. As discussed above, the CPUC has already taken action to make imported electricity more dependable, and has also reduced the planning assumption for how much imported electricity will be available into California. The changes in those assumptions resulted in the directive to build 3,300 MW of new resources that will start coming online in 2021.

Each of our organizations has more work to do in order to be fully responsive to your letter and to ensure that we are taking every measure necessary to guarantee the events of this past week will not be repeated. We thank you for your leadership and will each be sending you individual follow on letters that will address the questions and directives in your letter in more depth.

Sincerely,



Marybel Batjer

President

California Public Utilities Commission



Stephen Berberich

President and Chief Executive Officer

California Independent System Operator



David Hochschild

Chair

California Energy Commission