



California ISO



Preliminary Root Cause Analysis

Joint report with CAISO, CPUC, and CEC on the heat storm and energy events of August 14 through 19

Stakeholder meeting

October 15, 2020

Public

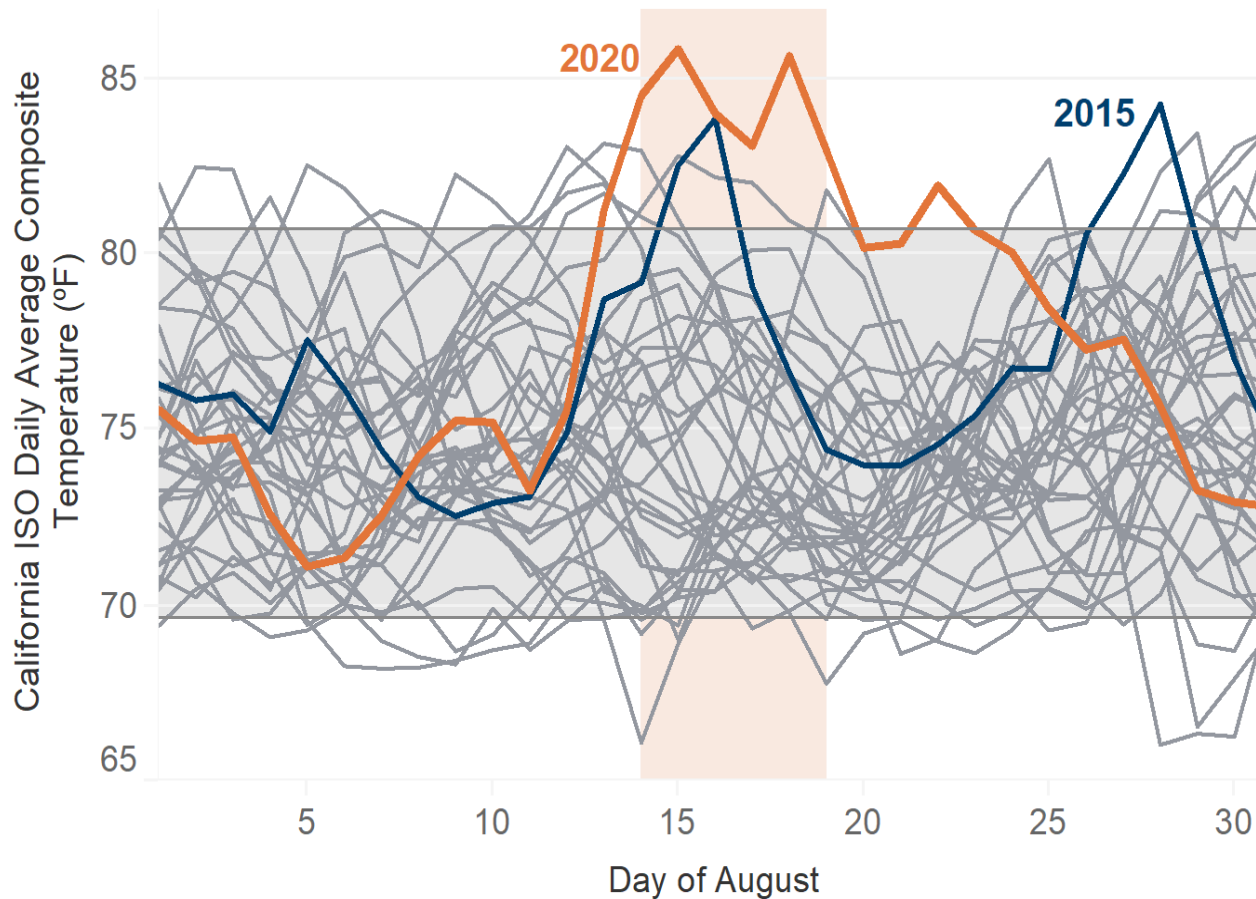
CAISO, CPUC, and CEC each play an integral role in maintaining reliability

- The **CEC** prepares and adopts the hourly, long-term electricity demand forecasts to be used in a variety of planning efforts, including resource adequacy.
- The **CPUC** sets reliability requirements for the investor-owned utilities, community choice aggregators, and energy service providers that participate in the CAISO market to ensure there is sufficient capacity to meet the forecasted demand.
- The **CAISO** operates the transmission system and wholesale energy markets to maintain the reliability of the grid.

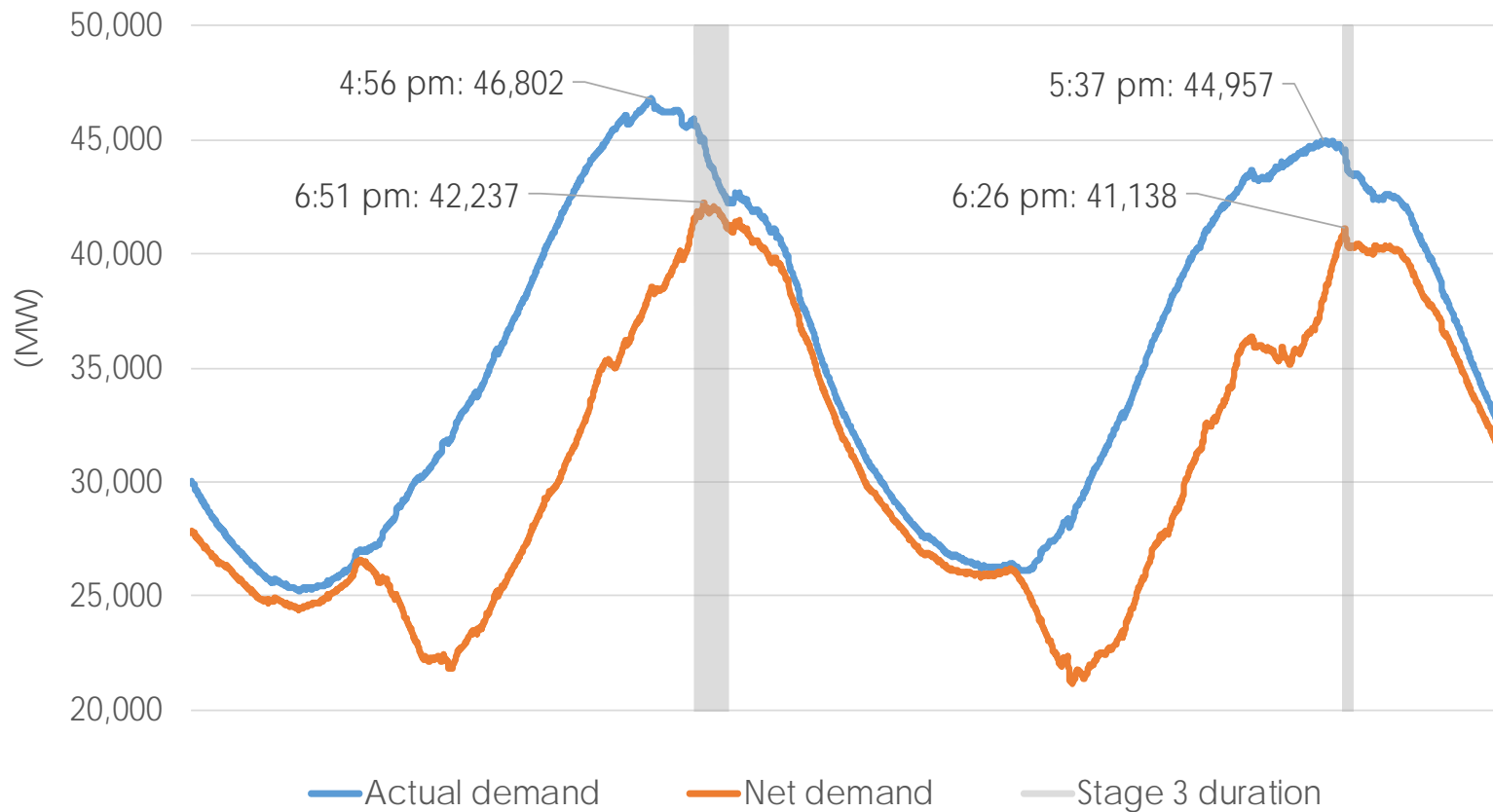
Preliminary root causes

- The existing resource planning processes are not designed to fully address an extreme heat storm like the one experienced in mid-August.
- In transitioning to a reliable, clean, and affordable resource mix, resource planning targets have not kept pace to lead to sufficient resources that can be relied upon to meet demand in the early evening hours. This makes balancing demand and supply more challenging. These challenges were amplified by the extreme heat storm.
- Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions.

Existing resource planning processes are not designed to fully address extreme heat storm

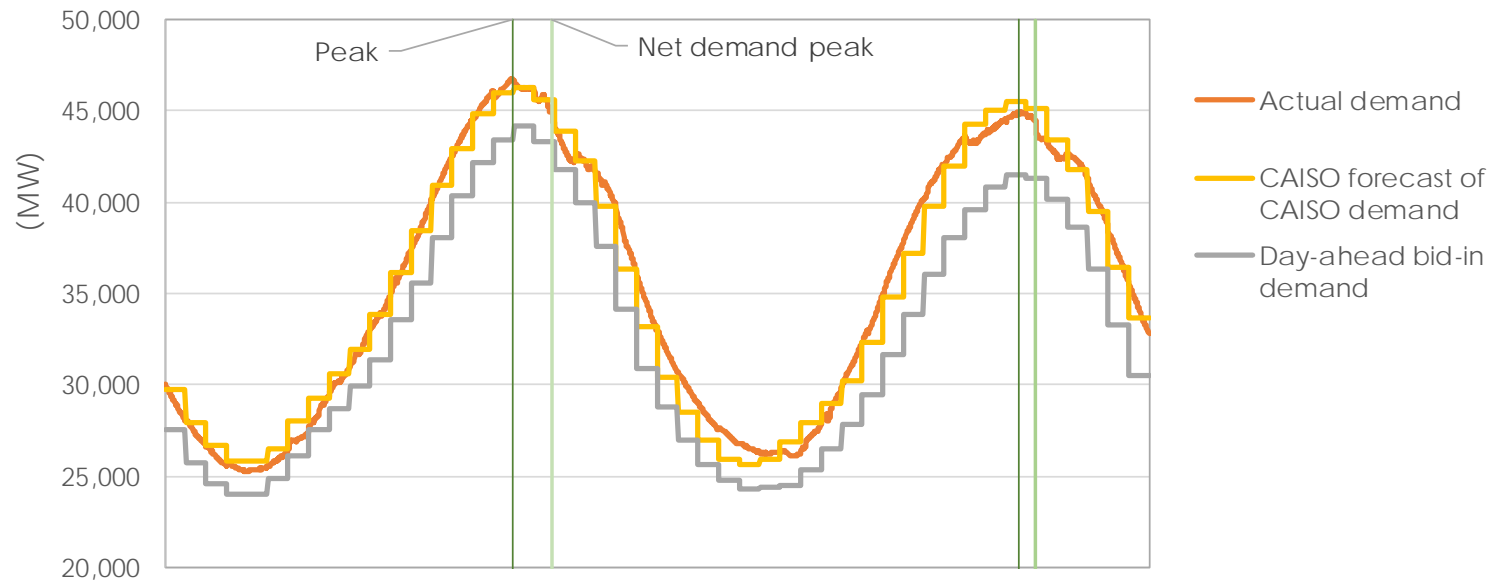


Planning targets have not kept pace to lead to sufficient resources that can be relied upon to meet demand in the early evening hours



Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions

8/14 and 8/15 day-ahead bid-in demand, CAISO forecast, and actual demand



Day-ahead bid-in demand below actual:

	<u>8/14</u>	<u>8/15</u>
At peak:	3,386	3,434
Time of net demand peak:	1,792	3,219

Recommendations: near-term and actions already taken

Actions taken and Near-term (by Summer 2021)

- **Actions that have already been taken**
 - Construction of new generation
 - Adjustments to energy market processes
- **Resource planning and procurement**
 - Increase RA requirements (1-in-2 demand plus 15% planning reserve margin) to more accurately reflect risks of extreme weather
 - Bring additional resources online
 - Non-CPUC jurisdictional entity planning targets
 - RA crediting counting requirements
 - Modernize Flex Alert

- **Market enhancements**
 - Address under-scheduled CAISO load in the day-ahead market
 - CAISO market improvements
- **Improving situational awareness and plan for contingencies**
 - State-wide and WECC-wide resource sufficiency assessments
 - Develop communication protocols to trigger statewide coordination
 - Contingency Plan

Recommendations: mid- and long term

Mid-term (2022 through 2025) and Long Term

- **Resource planning and development**

- Consider whether new resources are needed to meet the mid- and longer term
- Accelerate deployment of demand-side resources
- Under SB 100 scenarios, consider where diverse resources can be built and the transmission and land use considerations
- Under SB 100 work, establish a transmission technical working group (CAISO, BAs, CEC, CPUC) to evaluate transmission options and constraints

- **Market enhancements**

- Continue to develop market enhancements from near-term

- **Improving situational awareness and plan for contingencies**

- Under CEC IEPR, develop statewide and WECC wide RA assessments; address electric sector reliability and resiliency; update the range of climate scenarios in CEC forecasting (supply and demand); and bridge gaps between planning considerations across various planning horizons between CEC forecast and emerging SB100 scenarios

There are several next steps for completing final analysis including but not limited to the following:

- Evaluate how credited resources performed across CPUC and non-CPUC jurisdictional footprints.
- Evaluate demand response performance based on settlement meter data.
- Analyze how different LSE scheduling coordinators scheduled load in the day-ahead market compared with their forecasted peak demand, and understand and address the underlying drivers.
- Improve communications to utility distribution companies to ensure appropriate response during future critical reliability events and grid needs.
- Review performance of specific resources during the heat storm.

Questions?

- Submit questions to ISOStakeholderAffairs@caiso.com