COVID-19 Impacts to California ISO Load & Markets: March 17 – April 12, 2020

Market Analysis and Forecasting

April 20, 2020
Background

• Between March 17-19, various California counties were implementing directives and orders for restaurants and other commercial stores to close, and for companies to send non-essential staff to work from home.

• Beginning Friday, March 20, the state implemented an executive order for all residents to stay home, and leave their homes only for work, food, medical supplies, and health care.
Summary

• Since the first full week of the statewide stay-at-home order, the ISO has observed:

  ➢ **Weekday** average load reductions of 4.5%, and up to 7% reductions during peak hours.

  ➢ **Weekend** average load reductions of 0.5%, and up to 3% reductions during peak hours.

• Because ISO’s forecasting process allows us to perform a backcast analysis given the underlying weather conditions and type of day, these reductions compare actual load to expected loads if no order were in place.

• While the sophisticated load forecast models could not have anticipated the stay-at-home order, the ISO continues to fine-tune its models to improve forecast accuracy in day-ahead and real-time markets.

• Energy prices have declined by $8 and $9 in the day-ahead and real-time markets, respectively.

• There have been no impacts to grid reliability from the stay-at-home order.
System Load Impact

Partial Stay-at-Home
(March 17-19)

Weekday: 2.7-5.8%
Weekend: 0-1%

Full Stay-at-Home
(Beginning March 23)

Weekday: 4.5-7%
Weekend: 0.5-3%

Note: Largest reductions occur over the morning peak hours.
Removing weather errors to isolate stay-at-home order’s impact

Backcast Analysis
Methodology for removing weather errors to isolate stay-at-home order’s impact

- CAISO is using a backcast model, which removes the largest known sources of weather error to isolate the stay-at-home order’s impact.
- The difference between the expected load model and what actually occurred is referred to as model error.
  - COVID-19 is a component of model error. There is a normal range for model errors and what is seen in this analysis is outside the normal range, allowing the ability to isolate the COVID-19 Impact.
Weather Adjusted: System impact March 9 - March 19
Weather Adjusted: System impact March 20 - March 27
Weather Adjusted: System impact March 30 – April 12
Numbers Show an Overall Reduction

The stay-at-home order began on Friday, March 20; our summary begins at the first full week beginning Monday, March 23. For details of impact during the partial stay-at-home orders, see page 11.
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Market analysis and forecasting

Price impact: COVID-19
Energy prices trended downward in the first two weeks of the shelter-in-place provisions.
Day-ahead energy prices reduced on average about $8 in the period of the shelter-in-place provisions.
Fifteen-minute energy prices reduced on average about $9 in the period of the shelter-in-place provisions.