



**BRIEF**

# California solar spike leads to negative CAISO real-time prices in March

By Robert Walton • April 10, 2017

## Dive Brief:

- Solar capacity on the California Independent System Operator (CAISO) system spiked last year, leading to negative prices at times when output is highest but demand is not.
- According to the U.S. Energy Information Administration, total solar capacity in California (including both distributed and utility-scale systems) grew from less than 1 GW in 2007 to nearly 14 GW by the end of last year.
- The rapid growth has led to low power prices in March, when energy demand is relatively low and solar production is high. On one day last month, real-time CAISO prices dipped below \$0/MWh for roughly six hours, EIA said.

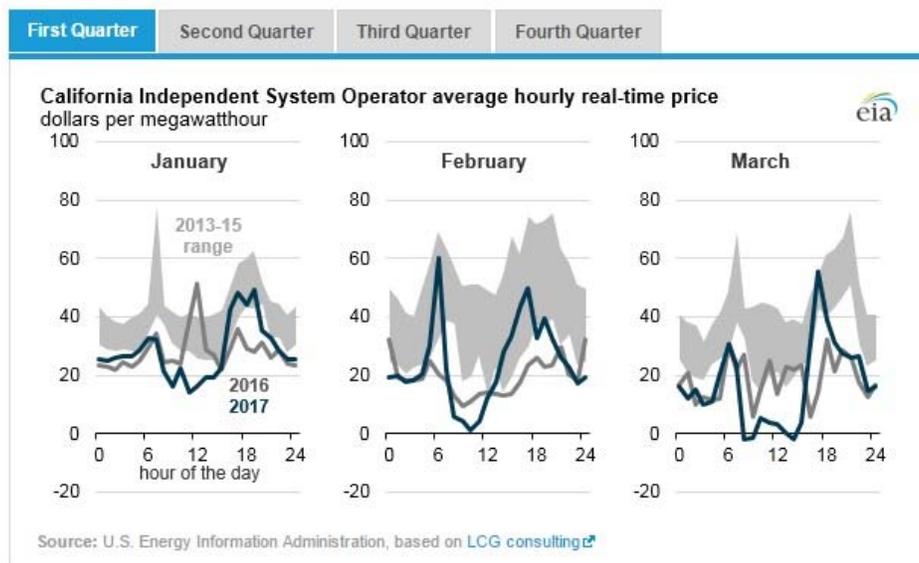
## Dive Insight:

There is more evidence that the rapid growth of renewable energy is causing upheavals in organized power markets.

Power prices in CAISO plummeted last month, at times going negative, compared with average prices from \$14/MWh to \$45/MWh during the same time periods in recent years.

EIA explains the negative prices materialize when generators with high shut-down or restart costs are forced to compete with other generators to avoid operating below equipment minimum ratings or shutting down completely.

"Large price spikes immediately before and after mid-day periods when both utility-scale and distributed solar generation reaches its peak level suggest a need for dispatchable generation sources to help cover ramping periods, when the need for power from the grid to meet load is rapidly changing," EIA concluded.



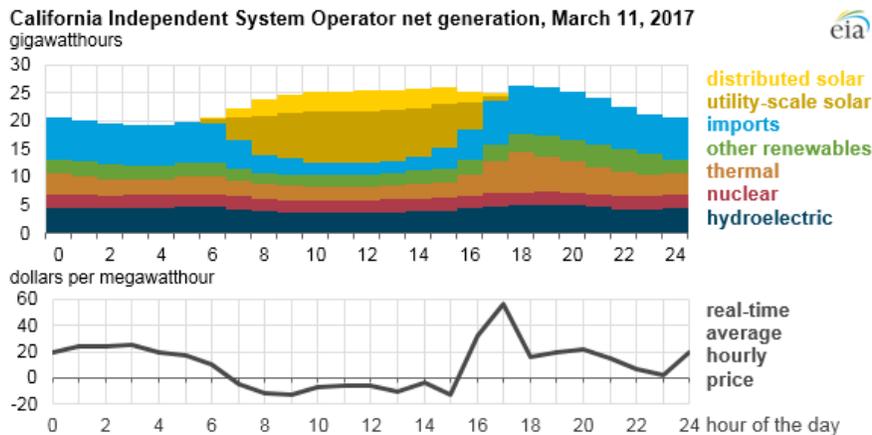
While gas displacing coal-fired generation has become a familiar story, the growth of renewable power in some markets has begun to pressure gas generators as well. Last year the La Paloma gas plant in California filed for bankruptcy.

In Texas, inexpensive wind energy has been hurting independent power producers with gas-fired facilities. The state now gets more energy from wind farms than nuclear plants, and as the fuel-free resource is dispatched first it has driven down energy prices, cutting revenues for IPPs.

Utilities in CAISO last year reported 5.4 GW of net-metered distributed solar capacity at the end of last year. According to EIA, that capacity would have generated approximately 4 million kWh during the peak solar hours on March 11.

"This level of electricity reduced the metered demand on the grid by about the same amount, suggesting that the total solar share of gross demand probably exceeded 50% during the mid-

day hours," EIA concluded. But it also caused prices to drop into negative territory for hours:



Credit: [EIA](#)

Low and negative pricing in CAISO today could be a sign of things to come for the state. California utilities are under a legislative mandate to increase renewable energy to 50% of their power mix by 2030.

### Recommended Reading:

[eia](#) U.S. Energy Information Administration  
Rising solar generation in California coincides with negative wholesale electricity prices [☑](#)