

News Release

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California ISO shows dramatic impact of storage added to the grid

Website displays notable battery trends, signaling unprecedented growth

FOLSOM, Calif. – With historic amounts of battery storage connecting to the California Independent System Operator (ISO) grid this year, the public can now visually track the impact of batteries on electricity supply and demand in real time on the ISO’s website.

The website has featured a “Batteries trend” graph on its [Today’s Outlook supply page](#) since April 2018. At that time, peak output from batteries was no more than 50 megawatts (MW), making it difficult to see any material charge and discharge of commercial scale storage on the system

Since then, battery storage has reached about 1,500 MW, with another 1,500 MW expected by the end of the year, making the graph a dynamic and useful tool for seeing the contribution of storage on the grid.

“No other grid in the country is adding battery storage at the rate that California is,” said Gabe Murtaugh, the ISO’s storage sector manager for Market and Infrastructure Policy. “New storage resources create new challenges for grid operators, because there is substantial work that needs to be done to properly price and model these resources in our markets. It is very exciting to be at the forefront of this energy transformation.”

A year ago, the ISO had around 550 megawatts (MW) of lithium-ion battery storage on its system. The addition of roughly 1,000 MW this year reinforces grid reliability while supporting state goals of advancing toward a carbon-free electricity system by 2045. The “Batteries trend” graph is a clear demonstration of the growth of battery storage and paints a much more powerful picture today than it did just last year.

The pace and volume of new storage capacity is requiring the ISO’s grid operators to quickly learn grid management strategies and tools to best integrate the new technology, Murtaugh said.

“But our grid operators are up to the task,” he added. “This is not dissimilar from the situation they faced about 10 years ago when large amounts of new solar resources were interconnecting.”

Typically, battery storage assets charge during the day, when solar energy is abundant and prices are low, and discharged in the late afternoon and evening hours, when solar



resources are going offline and demand for electricity is still high because of hot weather.

The current amount of lithium-ion batteries connected to the grid are capable of powering about 1.1 million homes for four hours before needing to be recharged.

The graph shows batteries on the system, which could be either charging or discharging, for each 5-minute interval throughout the day. The supply page also features graphs showing other sources of power available to the grid, including electricity imported from outside our balancing authority.

So far this summer, the additional storage has helped grid operators keep the system balanced in the face of growing impacts from climate change, including major wildfires, more frequent extreme weather conditions and reduced hydro power from the prolonged drought in California and the West.

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The California Independent System Operator (ISO) is a nonprofit public benefit corporation dedicated, with its partners, to continuous improvement and secure operation of a reliable grid operated for the benefit of consumers. It provides comprehensive grid planning, open and nondiscriminatory access to one of the largest networks of high-voltage transmission power lines in the world, and operates a \$9 billion competitive electricity market. Recognizing the importance of the global climate challenge, the ISO is at the forefront of integrating renewable power and advanced technologies that will help provide a sustainable energy future efficiently and cleanly.

The Western Energy Imbalance Market (EIM) Governing Body is the governing authority designed by regional stakeholders with delegated authority from the ISO Board of Governors to resolve rules specific to participation in the Western EIM.