

News Release

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Largest battery storage system in US connects to California ISO grid 2020 will see a rise of almost six times the storage capacity in ISO markets

FOLSOM, Calif. – The California Independent System Operator (ISO) connected the largest battery storage resource in the nation to its power grid last month, signaling an era of rapid battery growth for the ISO in the next several years.

The initial phase of LS Power Group's Gateway Energy Storage Project in San Diego County came online June 9, adding 62.5 megawatts (MW) of storage interconnection to the ISO grid. The power grid, which serves about 80 percent of California and a small portion of Nevada, currently has just over 216 MW of storage capacity in commercial operation. If all planned projects in the interconnection queue are completed on schedule, storage capacity will jump to 923 MW by the end of 2020, a six-fold rise from 136 MW at the beginning of the year.

"We are at a turning point for storage on our system," said Steve Berberich, ISO president and CEO. "For many years, we have understood the promise of storage to take oversupply off the grid in the middle of the day and deliver it at the end of the day when the need is great. With some of these large-capacity projects coming online, 2020 will be the transition year for battery storage to play a critical role in integrating renewables in the future."

Berberich predicts that as much as 15,000 MW of battery storage – of different duration levels and various technologies – will be needed to help the state reach its goal of cutting carbon from power grids by 100 percent by 2045. The ISO anticipates large increases in its battery storage resources through 2023 based on the state's procurement targets.

Batteries are widely seen as an important strategy for managing rising amounts of renewables onto electricity grids. Solar output soars most middays, but demand is low – partly due to the abundance of rooftop solar panel production – resulting in an excess of renewable energy that must be curtailed or sold to other grids. At the end of the day, demand is high, coinciding with the sun setting. System operators largely rely on natural gas generation to provide energy during that time. With accelerated efforts to decarbonize power grids, natural gas plants are increasingly being retired. Batteries could take the place of natural gas generation by charging during times of oversupply, and storing the energy for use during the evening hours.



The Gateway project, a lithium-ion battery system, will have a total capacity of 250 MW when it is in full operation. The company plans for it to be fully online in August 2020, when it will reportedly be the largest operating Battery Energy Storage System (BESS) in the world. The initial 62.5 MW of storage already makes it the largest BESS in the nation, according to a database maintained by the US Energy Information Administration (EIA). Out of a total of more than 170 BESS facilities of 1 MW or more currently operating in the United States, the two second-largest are 40 MW, one each in California and Alaska.

Some larger projects are on the horizon in the US, including plans for a system of more than 400 MW in Florida, and another in Nevada slated to be 380 MW.

More battery storage is also expected to be added to the ISO market in the next few years, most notably 300 MW of a 400-MW project planned by Vistra Energy Corp. at Moss Landing in Monterey Bay, and the remaining 187.5 MW at the Gateway station.

Battery technology is advancing to allow for longer duration of discharge, which is cost-beneficial to commercial developers, and more efficient for grid operations. Batteries are also versatile performers in energy markets, as they can charge and discharge for different durations and power levels, based on market opportunities at any given time.

When batteries are paired with other resources, a design known as hybrid generation, they can manage oversupply, help alleviate local congestion on lines, mitigate variability, allow for generation dispatches upward and downward, and reduce curtailments. Coupling with a wind or solar plant also allows for leveraging of [inverter-based smart technology](#). Recent test results showed that [solar](#) and [wind](#) power plants with such technology can offer ancillary services needed for grid reliability, making renewable generation more cost-effective for developers.

For more information on how energy storage can help support the transition to low-carbon power systems, visit the caiso.com website to read a [discussion paper](#) by the ISO and Renewables Grid Initiative.

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The California ISO provides open and non-discriminatory access to one of the largest power grids in the world. The vast network of high-voltage transmission power lines is supported by a competitive energy market and comprehensive grid planning. Partnering with about a hundred clients, the nonprofit public benefit corporation is dedicated to the continual development and reliable operation of a modern grid that operates for the benefit of consumers. Recognizing the importance of the global climate challenge, the ISO is at the forefront of integrating renewable power and advanced technologies that will help meet a sustainable energy future efficiently and cleanly.