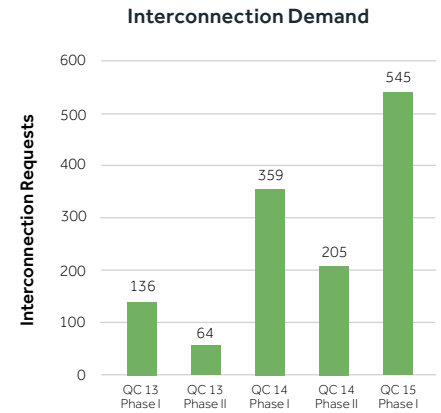


STORAGE ISSUES AND OPPORTUNITIES

TRANSMISSION AND INTERCONNECTION

As jurisdictions across the U.S. seek cost-effective means to achieve growing clean energy goals, developer interest in renewable generation and energy storage assets is strong and continues to grow. This has spurred a substantial increase in annual interconnection requests (both in terms of number and capacity) across the US regional transmission organizations (RTOs) and independent system operators (ISOs). According to Lawrence Berkeley National Laboratory (LBNL)¹, over 10,000 projects, representing 1,350 GW of generation capacity and 680 GW of energy storage, are currently seeking interconnection across the U.S.



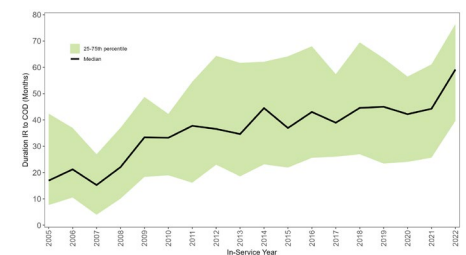
Source: Evaluated by CESA based on CAISO data.

In California, record interconnection demand has delayed interconnection request applications. CAISO is currently working through a record-setting cluster, QC 15.

Record interconnection queues highlight the need to streamline planning processes and reflect technology and resource capabilities, yet continue to uphold principles of competition and transparency. The CAISO and relevant agencies should develop means to incentivize PTO performance and establish concrete timelines for construction of upgrades and facilities to ensure the industry is able to meet unprecedented resource buildout needs. Third-party resources should be leveraged and portions of the interconnection process should be automated as much as possible.

Reliability needs can also be supported by revising deliverability methodologies, which would ensure full utilization of our transmission system, bring additional value to ratepayers, and advance California’s decarbonization goals in alignment with affordability and reliability. Energy storage should also be more widely and closely examined and pursued as a bridge infrastructure resource that can address a myriad of system needs, including serving as a non-wires transmission solution that can defer and even obviate the need for transmission upgrades.

The median duration from interconnection request (IR) to commercial operations date (COD) continues to rise.

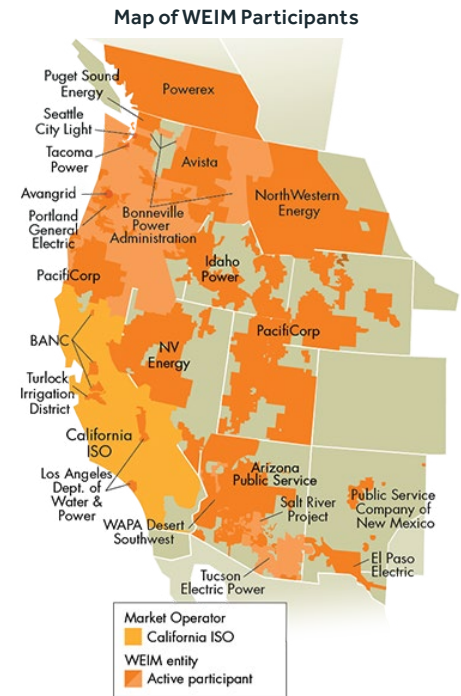


Source: LBNL Queued Up Report (April 2023).

¹ Capacity in Interconnection Queues Across the US, by Technology and Configuration (LBNL, 2023)

CAISO REGIONALIZATION

Regionalization has the potential to optimize resource and infrastructure buildout, reduce ratepayer costs by minimizing overbuild, and increasing access to a bigger pool of resources. Today, the California Independent System Operator (CAISO), the sole ISO in the Western US, is the market operator of a regional real-time wholesale energy trading market that enables participants across the West to buy and sell energy when needed. This market, the Western Energy Imbalance Market (WEIM) has yielded more than \$3.4 billion in gross benefits to ratepayers across the West since its inception in November 2014. Given these benefits, the CAISO is also expanding its day-ahead market regionally through the Extended Day-Ahead Market initiative, approved by the CAISO Board of Governors and the WEIM's Governing Body in 2023. A natural next step for CAISO is to evolve into a RTO.



The evolution of CAISO from a state ISO to a RTO would improve planning and coordination across power grids throughout the West. Regionalization would improve resource sharing across the region, potentially reducing development costs and enhancing the affordability of attaining California's decarbonization goals.

Given the clear benefits of regionalization, CAISO is not the only organization looking to further their position and become the Western RTO. If CAISO does not proactively and quickly position itself for effective regionalization, Western states are at risk of joining other organizations seeking to establish themselves as the Western RTO, a situation that would forgo leveraging CAISO's mature and more favorable energy storage wholesale participation models.

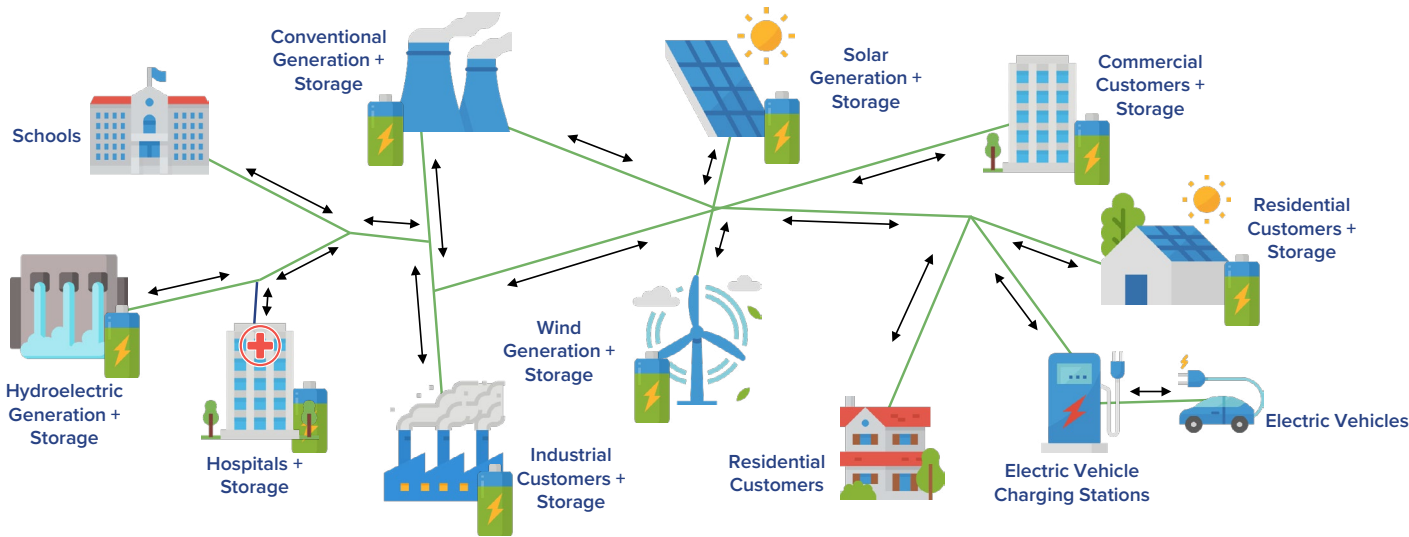


DISTRIBUTED ENERGY STORAGE FOR CUSTOMER AND GRID RESILIENCY

Distribution interconnected and behind-the-meter energy storage enables customers and communities to keep the lights on in times of grid stress. To the benefit of all local ratepayers, the additional capacity from these storage resources can be dispatched and exported to the grid in response to local grid constraints. This is critical given the frequent occurrence of extreme weather events in the state, such as fires and extreme heat events. Storage is an effective and non-polluting alternative to gas and diesel backup generators to ensure grid resiliency. Further deployment of these systems:

<p>SUPPORT GRID RELIABILITY</p>	<p>Energy storage and microgrids can allow entire areas of the grid to remain energized and provide electric service during emergencies. The state’s energy agencies have created emergency reliability programs specifically designed for storage participation. CAISO reports an estimated 2.5 GWs total during the time of greatest grid stress from market integrated and out of market programs including the Emergency Load Reduction Program and Demand Side Grid Support Program². With more than 1 GW of customer batteries installed in California, CESA estimates that significant BTM storage and resources were dispatched during this period.</p>
<p>PROTECT COMMUNITIES AND CUSTOMERS</p>	<p>Energy storage installed in a community center, fire station, school, or hospital will allow vital services such as cooling centers, safety and medical services, and communications during grid outages. Customers install storage systems as resiliency measures in their homes, often with support from the Self Generation Incentive Program.</p>

21st Century Grid: Bi-directional Flow of Electricity



² Summer Market Performance Report. California Independent System Operator. September 2022. Figures 18-20.

