ENERGY STORAGE DEPLOYMENT

ENERGY STORAGE DEPLOYMENTS ARE CRITICAL FOR CALIFORNIA'S TRANSITION TO A GHG-FREE POWER SYSTEM

California needs massive deployments of energy storage to meet its SB 100 goals affordably and reliably. Energy storage can help solve many of California's challenges and is an urgently needed, no-regrets solution for helping to address:

Sunsetting of the Natural Gas Fleet: All natural gas plants in the State must be retired by 2045. Currently, 50% of the energy generated in California is from natural gas.[1] Energy storage is an instrumental resource to replace that capacity.

Meeting Electrification Demand: Demand for electricity is growing due to the increased adoption of electric vehicles (EVs) and the replacement of traditional gas-fired appliances. Storage can help provide stable power for EV charging without the need for utility system upgrades and load shifting to manage energy costs.

Preventing Blackouts with Local Resources: As the state experiences more severe and longer heat waves, energy storage in load pockets can dispatch to provide emergency capacity and reduce customer load at critical times.

Integrating a Very High Penetration of Renewables: By 2030, 60% of the state's power mix must be generated from renewable sources, with the majority coming from variable wind and solar. Storage is a GHG-free resource that firms renewable assets, reduces curtailment, and stabilizes the grid.

[1] California Energy Commission. "2021 Total System Electric Generation."

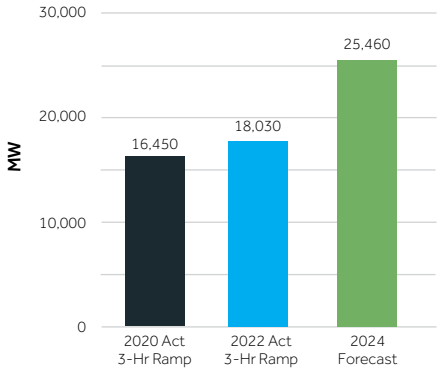
Energy storage offers a diverse asset class of many technologies and use cases that can be deployed anywhere, reprogrammed and repurposed, and integrated with existing assets to optimize system performance and lower costs. **Energy storage is a no-regrets investment for California and is needed to help reach SB 100 clean energy goals.**

DIVERSE STORAGE APPLICATIONS CAN MEET CALIFORNIA'S DIVERSE NEEDS

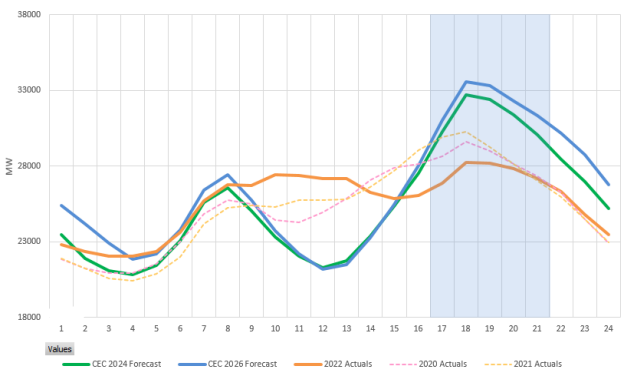
Energy storage is being deployed to meet location-specific grid needs:

ENSURES RESILIENCE DURING HEAT WAVES	• **Emergency Load Reduction Program (ELRP)** - In 2021, the CPUC created a program designed to incentivize customers to support grid resilience with load reduction, dispatching virtual power plants (VPPs) composed of behind-the-meter (BTM) energy storage or electric vehicles. • **Demand Side Grid Support Program** - In 2022, the CEC created a program designed to support the grid during heat waves with demand-side resources. As part of this program, the CEC is piloting an innovative program option specific to BTM batteries.
REPLACES NATURAL GAS PLANTS	• **Aliso Canyon** - 99.5 MW of energy storage was procured and operational in 2017 to address reliability issues stemming from limitations of the Aliso Canyon natural gas storage facility. • **Moss Landing** - 567.5 MW of energy storage has been procured to reduce reliance on costly backstop procurement of natural gas.
REDUCES SOLAR CURTAILMENT	• **LADWP Beacon Solar Project** - Located in the Mojave Desert outside Los Angeles, this facility pairs 20 MW / 10 MWh of battery energy storage with 250 MW of solar generation.

Max Annual 3-Hour Net Load Ramp



2020-2022 Actuals and 2024, 2026 Forecast



Source: CAISO. "Final Flexible Capacity Needs Assessment for 2024."

The CPUC's Integrated Resource Plan suggests that more than 30 GW of energy storage will be required to integrate new supply of renewable generation that is expected to be installed through 2035. CESA's analysis finds that the need for storage is underestimated in light of SB 100, due to modeling assumptions around storage costs, hybrid storage, curtailment, and gas resources.

ENERGY STORAGE ENABLES THE STATE TO MEET ITS CLIMATE GOALS AND GRID DIVERSE NEEDS.

CESA CALIFORNIA ENERGY STORAGE ALLIANCE

Founded in 2009, California Energy Storage Alliance (CESA) is a 501c(6) membership-based advocacy group committed to advancing the role of energy storage in the electric power sector through policy development, education, outreach, and research. Our mission is to make energy storage a mainstream resource to advance a more affordable, efficient, reliable, safe, and sustainable electric power system.
For more information, visit storagealliance.org.