

# Energy Storage Deployments Are Critical for California's Transition to a GHG-Free Power System

California has successfully deployed hundreds of MWs of advanced energy storage helping the state achieve aggressive clean energy goals. Many more GWs of storage will be required to meet the state's 100% GHG-free energy by 2045 target.

## Energy Storage to Meet Policy Goals

Energy storage is a critical mainstream resource to advance a more affordable, reliable, safe, and sustainable electric power system. California needs massive deployments of energy storage to achieve state goals of reaching 100% clean energy by 2045 affordably and reliably.

## Energy Storage is Solving Grid Challenges in California

California has more advanced energy storage deployed than any other state (>1 GW); with even more storage procured (1.7 GW). Energy storage technologies can help solve many of California's challenges including:

- **Sunsetting of the Natural Gas Fleet:** All natural gas plants in the state must be retired by 2045. Currently 43% of energy generated in California is from natural gas<sup>1</sup>. Energy storage will be instrumental to a successful replacement of that capacity.
- **Meeting EV Charging Demand:** Demand for electricity is growing due to the increased adoption of electric vehicles. Storage can help stabilize the grid for DC fast charger clusters without the need for transmission upgrades.
- **Curbing High Electricity Costs:** California needs tools like energy storage to keep electric service costs affordable for all Californians. Energy storage helps prevent curtailment and improves efficiency across the power system, thereby lowering costs per kWh produced for all ratepayers.
- **Integrating a Very High Penetration of Renewables:** By 2030, 60% of the state's power mix must be generated from renewable sources, with much coming from intermittent wind and solar. Storage is a GHG-free resource that firms renewable assets, reduces curtailment, and stabilizes the grid.

1 California Energy Commission 2017 Total System Electric Generation

## California is Leading the Way

California has worked to solve a number of problems that many other states are just beginning to face including:

- **Interconnection procedures.** California has identified best practices for the safe installation and operation of energy storage technologies.
- **Multiple use applications of energy storage.** Stacking the value streams provided of energy storage applications increases the value of the asset.
- **Quantifying energy storage capacity.** The resource Adequacy program allows energy storage to contribute to the safe and reliable operation of the grid.
- **Energy storage technology diversity.** California has installed: pumped hydro, electrochemical batteries, mechanical energy storage, thermal storage, and other advanced technology energy storage.



## Growing the Energy Storage Market

The energy storage market is very strong and growing in California. Market growth in California and other states can be further accelerated through these strategies:

1. **Support energy storage champions at the state Capitol.**
2. **Engage with a diverse stakeholders to achieve creative solutions and uses for energy storage.**

Energy storage has wide implications across the energy sector requiring perspectives and input from many stakeholders and requires policy champions to understand these implications to become energy storage advocates. To help grow the market in California, CESA has worked with parties including the California Public Utility Commission, the California Energy Commission, utilities, ratepayers, environmental groups, technology providers, developers, scientists.



**California is Open for Business!**  
California's proven market development pathway provides developers with a reliable, predictable marketplace to compete. The California market is the largest in the US and is continuing to expand to include new and innovative uses of energy storage technologies.

CESA is a non-profit membership-based advocacy group committed to advancing the role of energy storage in the electric power sector through policy, education, outreach and research.



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