U.S. Battery Storage Market Trends

For
2021 EIA Energy Storage Workshop
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By
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Key Takeaways

• As of August 2021, there were 2,955 MW of battery capacity installed in the United States

• 2021 was a record year for battery additions in the United States in which battery capacity doubled by August.

• CAISO and ERCOT are taking up larger shares of operating battery capacity in the large scale energy storage market

• Batteries are being used for a wider range and variety of use cases as overall capacity grows

• Over 61% of battery storage expected to be installed between 2021-2024 will be paired with solar

• Energy capacity costs have decreased from $2,102/kWh in 2015 to $589/kWh in 2019
Record year of additions in 2020 making up 1/3 of the total power capacity operational in the U.S.

Source: EIA-860 Annual Electric Generator Report

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Larger shares of battery storage are located in CAISO and ERCOT, while PJM sees a decrease in its share of capacity.

Source: EIA-860 Annual Electric Generator Report
Growth in reported use cases of arbitrage, load following, and excess wind/solar generation

2019

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Power Capacity (MW)</th>
<th>Energy Capacity (MWh)</th>
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<tbody>
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<td>Frequency regulation</td>
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<td>Ramping/spinning reserve</td>
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<td>Voltage/reactive power support</td>
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<td>Load following</td>
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<td>Arbitrage</td>
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<td>System peak shaving</td>
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<td>Load management</td>
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<tr>
<td>Excess wind/solar generation</td>
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<td>Backup power</td>
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<td>Co-located renewable firming</td>
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<td>Transmission/distribution deferral</td>
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Source: EIA-860 Annual Electric Generator Report
Growth in reported use cases of arbitrage, load following, and excess wind/solar generation

Source: EIA-860 Annual Electric Generator Report
Battery use cases are becoming more diverse as overall battery capacity grows

Source: EIA-860 Annual Electric Generator Report
It is expected that 8.9 GW of battery storage to be installed from 2021-2024 will be co-located with solar.
Over 6 GW of batteries to be installed between 2021-2024, over 69% of which will be co-located with solar.

Source: EIA-860 Annual Electric Generator Report
Longer duration batteries experience lower costs in terms of energy capacity with an average cost of $575/kWh.

Source: EIA-860 Annual Electric Generator Report
Average construction cost of batteries in terms of energy capacity fell by 72% between 2015 and 2019.

Source: EIA-860 Annual Electric Generator Report
Contact information

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