

U.S. Battery Storage Market Trends



For

2021 EIA Energy Storage Workshop

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By

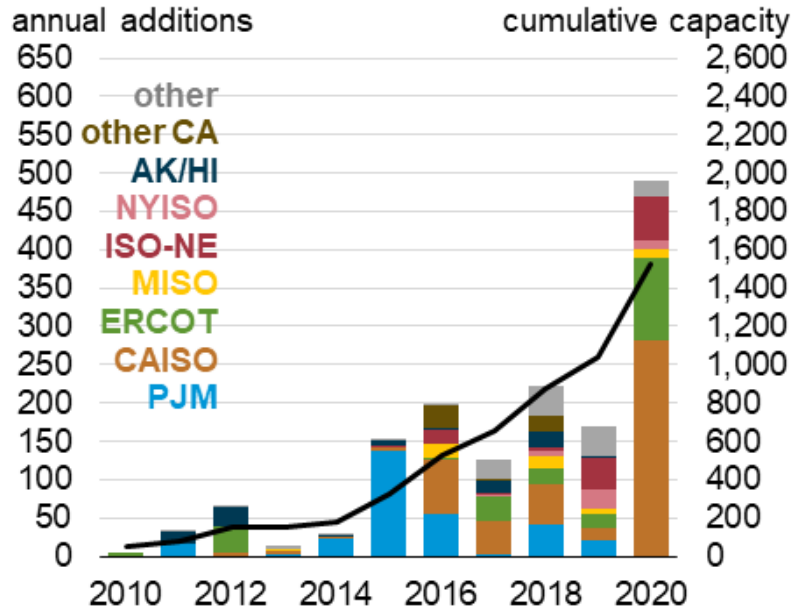
Alex Mey, Industry Economist

Key Takeaways

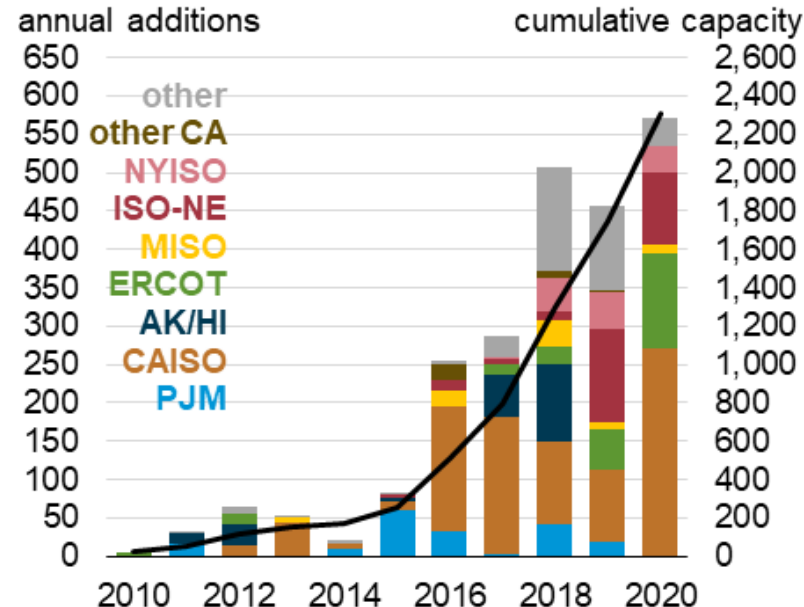
- As of August 2021, there were 2,955 MW of battery capacity installed in the United States
- 2021 was a record year for battery additions in the United States in which battery capacity doubled by August.
- CAISO and ERCOT are taking up larger shares of operating battery capacity in the large scale energy 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.

power capacity
megawatts (MW)



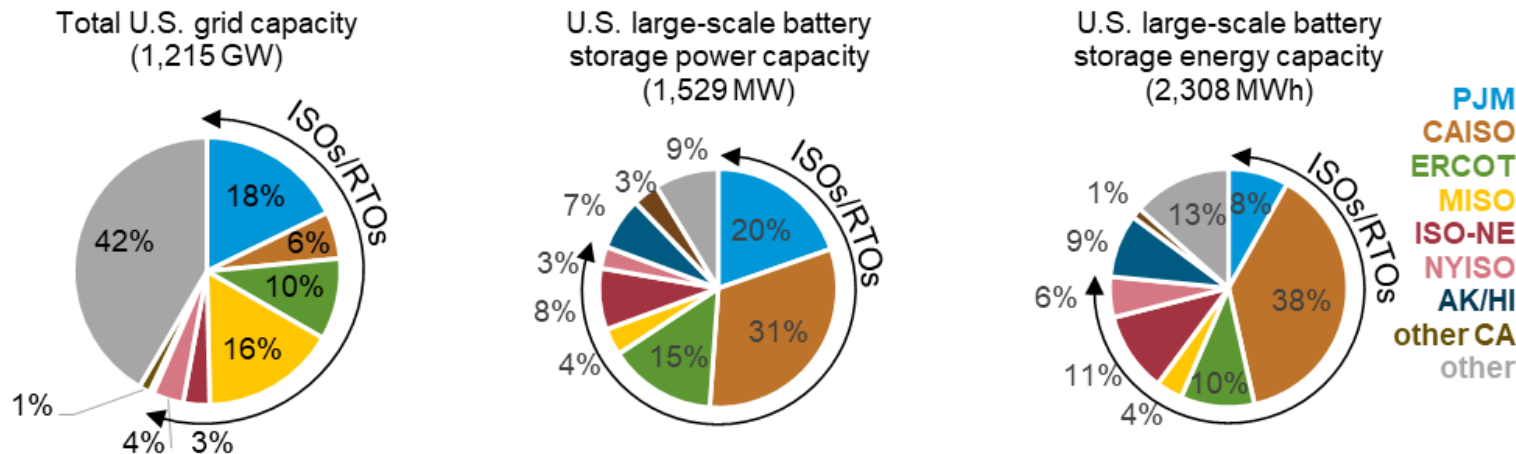
energy capacity
megawatthours (MWh)



Source: EIA-860 Annual Electric Generator Report

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

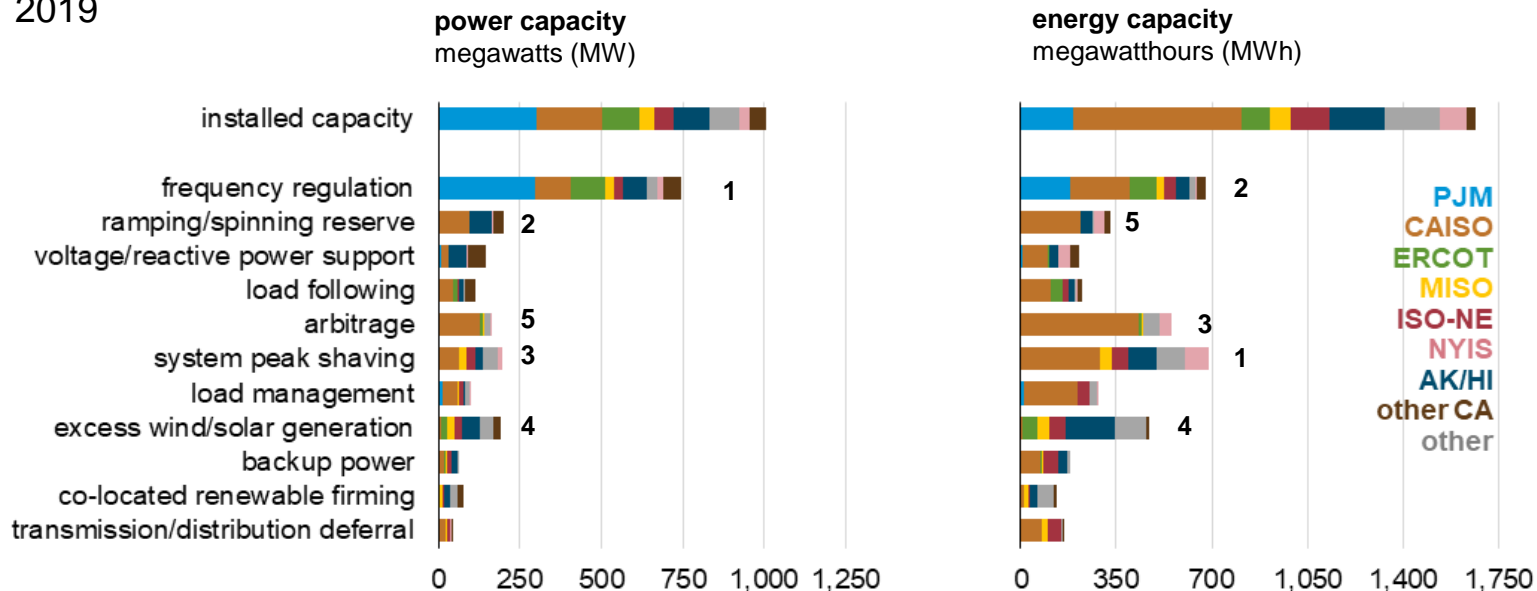
2020



Source: EIA-860 Annual Electric Generator Report

Growth in reported use cases of arbitrage, load following, and excess wind/solar generation

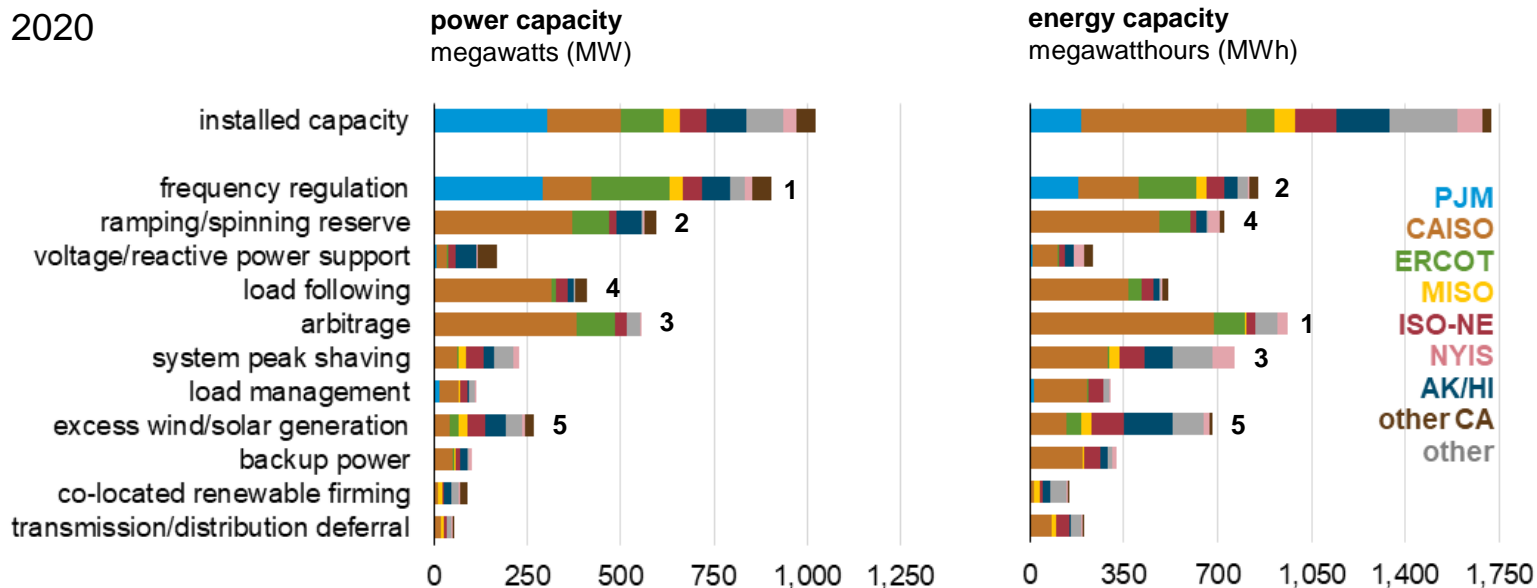
2019



Source: EIA-860 Annual Electric Generator Report

Growth in reported use cases of arbitrage, load following, and excess wind/solar generation

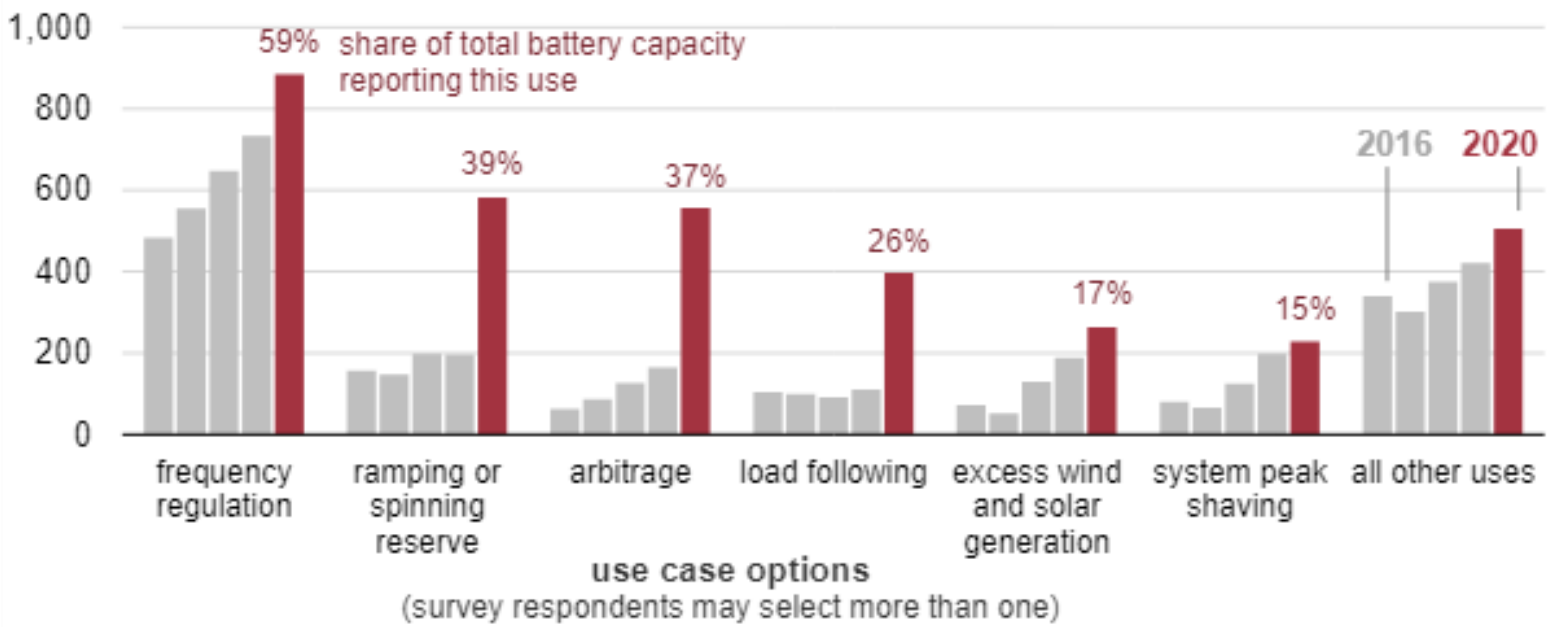
2020



Source: EIA-860 Annual Electric Generator Report

Battery use cases are becoming more diverse as overall battery capacity grows

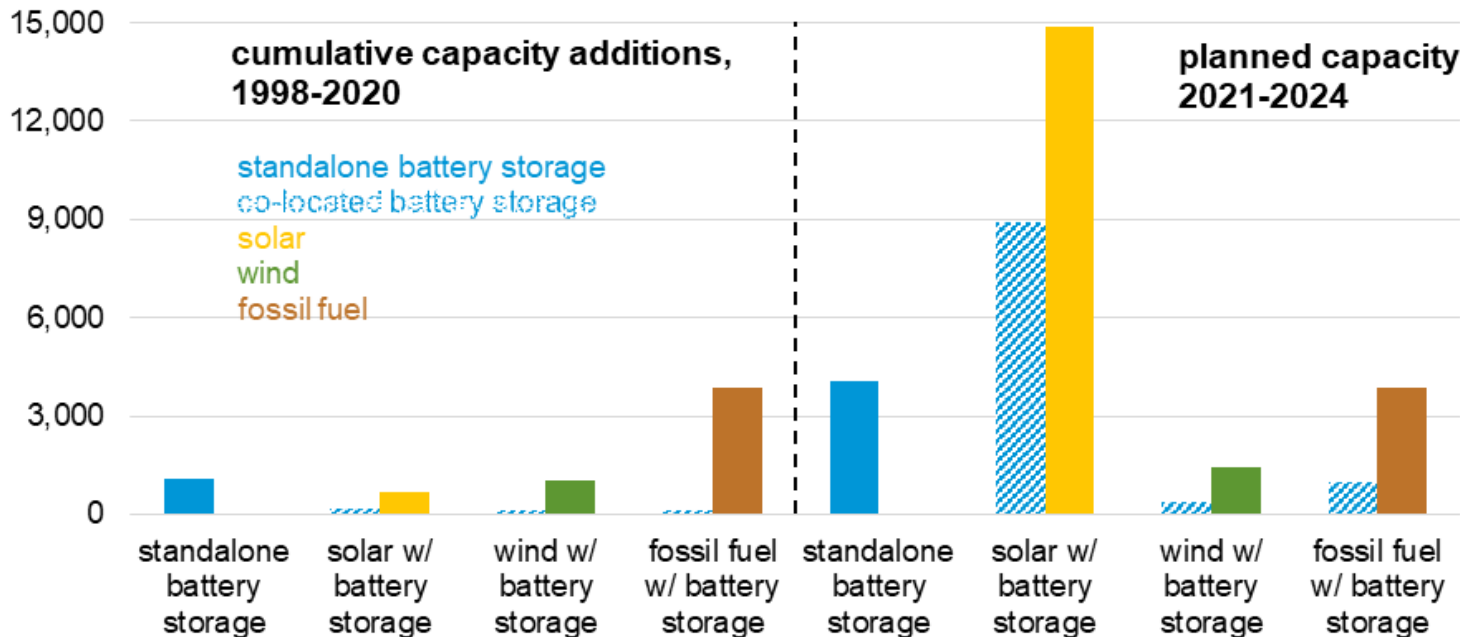
Use cases for U.S. utility-scale battery storage capacity (2016–2020)
megawatts



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

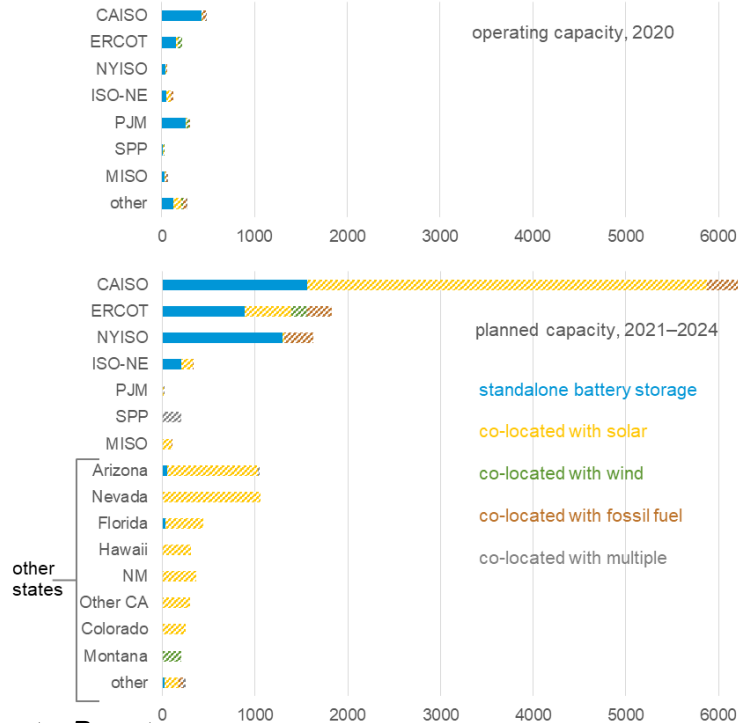
U.S. large-scale battery storage and co-located generator power capacity megawatts



Source: EIA-860 Annual Electric Generator Report

Over 6 GW of batteries to be installed between 2021-2024, over 69% of which will be co-located with solar

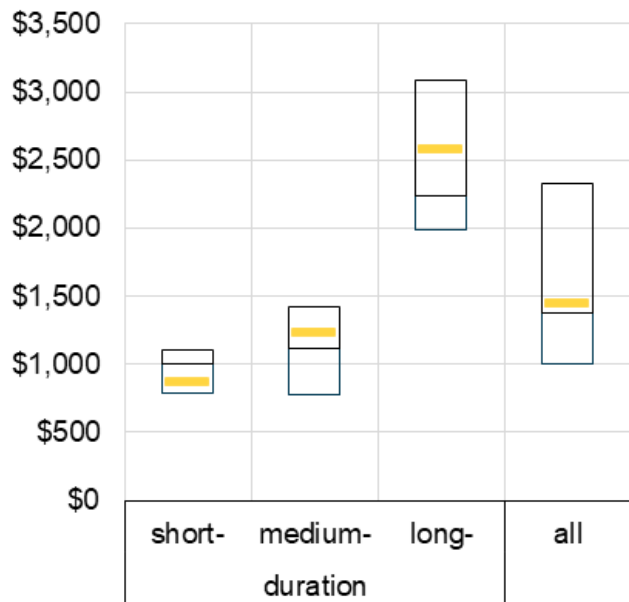
U.S. large-scale battery storage power capacity by region and co-located generator megawatts



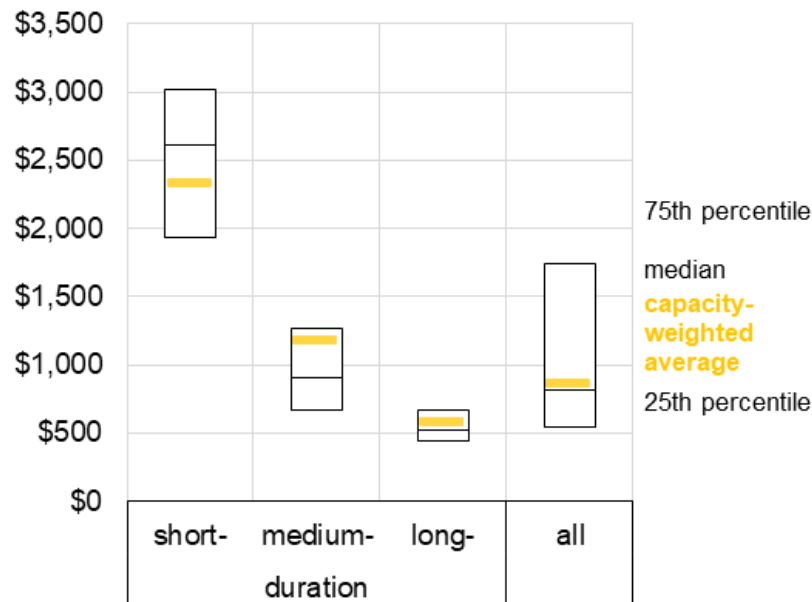
Source: EIA-860 Annual Electric Generator Report

Longer duration batteries experience lower costs in terms of energy capacity with an average cost of \$575/kWh

power capacity cost
dollars per kilowatt (\$/kW)



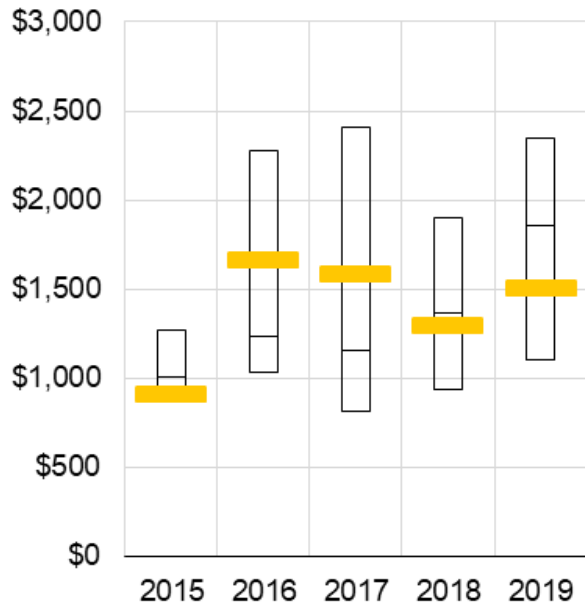
energy capacity cost
dollars per kilowatthour (\$/kWh)



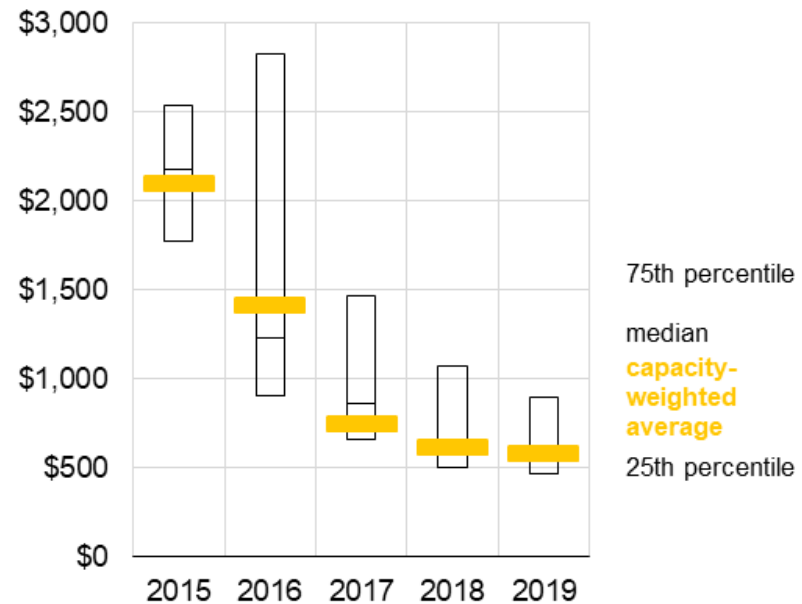
Source: EIA-860 Annual Electric Generator Report

Average construction cost of batteries in terms of energy capacity fell by 72% between 2015 and 2019

power capacity costs
dollars per kilowatt (\$/kW)



energy capacity costs
dollars per kilowatthour (\$/kWh)



Source: EIA-860 Annual Electric Generator Report

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