Tesla distributed energy storage



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Tesla Energy is no longer a sleeping giant. During the second quarter of 2024, Tesla Energy was able to deploy 9.4 GWh of energy storage products. This represents the highest quarter deployment of energy storage products in Tesla's history to date.

Tesla Energy was already a standout in the company's Q1 2024 Update Letter. In the document, Tesla highlighted that Q1's energy deployments were a new record at 4.1 GWh. As could be seen in Tesla's Q2 2024 production and delivery report, Q1's already impressive 4.1 GWh of energy storage deployments grew an astounding 132% quarter-over-quarter and 157% year-over-year.

Industry watchers have observed that Tesla Energy's battery storage deployments in Q1 and Q2 are already at 13.5 GWh, with two quarters remaining in the year. This is close to the company's overall energy storage deployments in 2023. For context, Tesla Energy deployed a total of 14.724 GWh in FY 2023, comprised of 3.889 GWh in Q1, 3.653 GWh in Q2, 3.980 GWh in Q3, and 3.202 GWh in Q4 2023.

Tesla Energy's impressive gains this Q2 2024 are likely due to the ongoing ramp of the Megapack at the Lathrop Megafactory. Considering that the Lathrop Megafactory has a capacity of 40 GWh per year, the company's Q2 2023 energy storage deployment results suggest that the facility is nearing its operational capacity. This does not mean to say that Tesla's Energy storage deployments will plateau from this point forward, of course, as the company is also hard at work constructing its Shanghai Megafactory.

Tesla's Shanghai Megafactory is expected to have a capacity of 40 GWh per year. Considering that the facility is being built according to the electric vehicle maker's specifications, however, it would not be surprising if the China-based Megapack plant's output exceeds 40 GWh per year in the long term. Tesla China officially started the construction of the Shanghai Megafactory in late May, and expectations are high that the facility could start producing Megapack batteries starting Q1 2025.

Two Tesla TSLA (TSLA) VPPs were approved in August by the state of Texas. The pilot project allows homeowners with power backup systems to sell energy back to the power grid, improving overall reliability.

VPPs are pooled networks of small energy-producing or storage devices, like solar panels and batteries. The novel idea is that these resources can be tapped by electric utility companies during periods of peak demand to improve overall grid reliability.

The Texas power grid failed spectacularly in February 2021 following an unexpected winter storm. As temperatures plummeted natural gas, coal, and nuclear plants were all knocked offline. Even the wind turbines froze. And once the powerplants went offline, engineers were unable to restart then quickly in sub-zero

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conditions. It was a disaster.

The New York Times NYT reported that demand for power during the cold spell peaked at 69,000 megawatts, surpassing the worst case scenario for an extreme weather condition. Utilities companies were forced to begin controlled power to avoid longer-term damage to key infrastructure. Epidemiologists later determined that 210 people died during the 2021 winter storm, many from hypothermia.

The Electric Reliability Council of Texas was formed in 1970 to manage the flow of electric power statewide. ECOT was supposed to prevent catastrophic events line of the fallout for the February winter storm.

Under an Aggregate Distributed Energy Resource pilot project announced late week, Tesla Electric customers with Powerwall energy storage systems can begin to help avoid future grid failures. Homeowners and small businesses will be able to sell surplus energy to CenterPoint Energy CNP customers in the Houston area, and the Oncor Electric Delivery Company, operating in Dallas. Utilities customers within these ERCOT power grid systems should get improved reliability. Tesla Powerwall owners should get paid.

Tesla Power and the government of South Australia announced in 2019 that a joint project would incorporate up to 50,000 home solar panel and Powerwall battery systems. The giant VPP project was extended in September 2021 to include Victoria, Australia. And a press release in May from the South Australia premiere noted that electricity rates for the VPP are now the cheapest in the state, 23% lower than the default market offer.

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