

# THE LATEST PRICE OF ENERGY STORAGE BID



How much does an energy storage system cost? Energy storage system costs stay above \$300/kWh for a turnkey four-hour duration system. In 2022, rising raw material and component prices led to the first increase in energy storage system costs since BNEF started its ESS cost survey in 2017. Costs are expected to remain high in 2023 before dropping in 2024.



How did energy storage grow in 2022 & 2023? The US utility-scale storage sector saw tremendous growth over 2022 and 2023. The volume of energy storage installations in the United States in 2022 totaled 11,976 megawatt hours (MWh) a figure surpassed in the first three quarters of 2023 when installations hit 13,518 MWh by cumulative volume.



How a domestic energy storage system compared to last year? In the first half of the year, the capacity of domestic energy storage system which completed procurement process was nearly 34GWh, and the average bid price decreased by 14% compared with last year. In the first half of 2023, a total of 466 procurement information released by 276 enterprises were followed.



What will energy storage be like in 2024? In 2024, the global energy storage is set to add more than 100 gigawatt-hours of capacity for the first time. The uptick will be largely driven by the growth in China, which will once again be the largest energy storage market globally.



Which energy storage technologies are included in the 2020 cost and performance assessment? The 2020 Cost and Performance Assessment provided installed costs for six energy storage technologies: lithium-ion (Li-ion) batteries, lead-acid batteries, vanadium redox flow batteries, pumped storage hydro, compressed-air energy storage, and hydrogen energy storage.

# THE LATEST PRICE OF ENERGY STORAGE BID



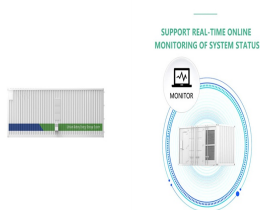
What will be the future of energy storage? In addition, we think that two major energy storage system (ESS) products will be launched and that at least one large-scale two- or three-wheeled-vehicle company will announce a vehicle model powered by sodium-ion batteries. Solid-state batteries progress, with new announcements potentially adding more than 40GWh.



a new option for default energy bids specifically designed for storage resources. Today, there are about 550 MWs of grid-connected storage resources installed on the system. Further, the ISO anticipates that about 1,500 MW will be installed by the conclusion of 2021 and



Bid for given PV and storage capacity. Lowest bid (\$/MW/month) for joint capacity : Blended energy contract. Bid for price per MWh (for given firmness level) Lowest bid (\$/MWh) Blended energy contract with time-differentiated rates (variation 1) Different bids (\$/MWh) for time blocks



to storage exist regardless of the recently proposed changes to allow energy storage resources to bid above the soft energy cap under certain circumstances.<sup>6</sup> As such, Board of Governors Memo regarding the Tariff Amendment on Price Formation Enhancements, May 2024, p. 6. The draft final proposal also includes a new section, Section 7



A. Energy Storage Price Response and Self-Schedule Energy storage price response assumes the storage participant can observe the real-time price realization first and then decide on the operation privately without informing the system operator. The price response participation option primarily applies to small-scale behind-the-meter (BTM)

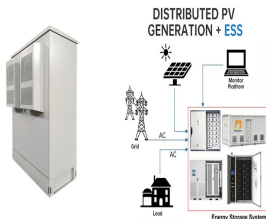
# THE LATEST PRICE OF ENERGY STORAGE BID



As part of the U.S. Department of Energy's (DOE's) Energy Storage Grand Challenge (ESGC), this report summarizes published literature on the current and projected markets for the global ???



In the latest auction, average prices were much higher, at around ???53,000 (US\$56,600) per MW/year. Energy-Storage.news" publisher Solar Media will host the 9th annual Energy Storage Summit EU in London, 21-22 February 2024. This year it is moving to a larger venue, bringing together Europe's leading investors, policymakers, developers



Energy Storage and Distributed Energy Resources Initiative: Second Revised Straw Proposal, Day 2 ??? The CPUC is ordering new resource procurement to for dispatch at price/quantity pairs Example bid curve for a +/- 12 MW resource: Page 9-12 MW 0 ???



the department of mineral resources and energy is procuring new generation capacity from battery energy storage in accordance with ministerial determinations gazetted under the integrated resource plan 2019. the department released and announced the first bid window calling for 513 mw during 2023.

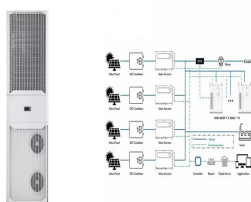


Bid Window 7 is the first bidding round, launched in terms of the December 2022 Ministerial Determination, that outlines the intended procurement of a total 14,771 MW of new generation and storage capacity which comprises 3,940 MW of solar photovoltaic energy, 9,600 MW of wind energy and 1,231 MW of battery energy storage. Bid submissions for

# THE LATEST PRICE OF ENERGY STORAGE BID



While results are still to be published, according to the state-run solar corporation's e-tender portal there were four winning companies (see above): Pace Digitek Infra, awarded 100MW at IR3.41/kWh???which was the lowest bid???Hero Solar Energy, awarded 250MW at IR3.42/kWh, ACME Solar Holdings (350MW, also at IR3.42/kWh) and JSW Neo ???



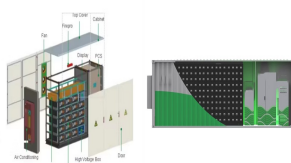
Currently, the cost of battery-based energy storage in India is INR 10.18/kWh, as discovered in a SECI auction for 500 MW/1000 MWh BESS. RK Singh, India's minister for Power and New & Renewable Energy, shared that a SECI auction for the installation of a 500 MW/1000 MWh battery energy storage system (BESS) has yielded a capacity charge of



The ISO, which serves the six states of Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont and Maine said earlier this month (9 February) that contracts were awarded at US\$3.58 per kilowatt-month (preliminary prices). ISO New England also noted at that time that nearly all capacity supply obligations were awarded to wind, solar ???



The prices for successful bids ranged between ???0.0678/kWh (US\$0.073/kWh) and ???0.0917/kWh and the average volume-weighted price was ???0.0833/kWh, which the Bundesnetzagentur said was "well below" the maximum tendered price. The auction sought solar-plus-storage projects on arable grasslands, with different criteria offered for different states. ???



??? The California Energy Storage Alliance (CESA) suggested to implement an alternative solution that would address Concern 2 RT Bid Price -150 -150 -150 FMM-IIE -20 -20 -20 RTD-IIE 1 1 1 DA Settlement (CC6011) (\$400) (\$400) (\$400) DA Bid Cost \$300 \$300 \$300

# THE LATEST PRICE OF ENERGY STORAGE BID



After solid growth in 2022, battery energy storage investment is expected to hit another record high and exceed USD 35 billion in 2023, based on the existing pipeline of projects and new capacity targets set by governments. Chief among them is their ability to compete on price given the rapidly falling cost of new systems, although recent



The median price bid for wind-plus-storage projects in Xcel's all-source solicitation was \$21/MWh, GTM Research's Shayle Kann noted on Twitter, and the median bid for solar-plus storage was \$36/MWh.



With a separate, general tariff of 3.4% on Chinese lithium-ion batteries, the effective tariff on lithium-ion battery imports will rise from 10.9% to 28.4%, Clean Energy Associates (CEA) said in a note this week. The tariff increase will raise the costs for US system integrators using China's batteries by 11-16%. Cost increases will be higher for those who add ???



PNM submitted the application with the state regulator on 25 October last year, following a summer which saw the utility twice surpass its record peak electricity demand consecutively on 17 July and 18 July 2023. The NMPRC published an order on its online electronic docketing system approving the application on 31 May. Clenera solar and storage ???



"Bulk" storage solicitations could signal boom in New York The state also has in place a target of deploying 6GW of energy storage by the end of this decade with an interim 3GW target by 2025. While that is among the US" most ambitious policy targets, regular readers of Energy-Storage.news will be aware that progress to date has been slow.

# THE LATEST PRICE OF ENERGY STORAGE BID



The two metrics determine the average price that a unit of energy output would need to be sold at to cover all project costs inclusive of taxes, financing, operations and maintenance, and others. compare the true cost of owning and operating various storage assets and creates better alignment with the new Energy Storage Earthshot



is in the books, and early indications are that the global energy storage system (ESS) market may very well have doubled again in terms of gigawatt-hours (GWh) installed. This is a remarkable feat, especially in the face of geopolitical tumult, elevated interest rates and impossibly crowded interconnection queues. The market has shown reliance and is, ???



???Bid costs include start-up bid cost, minimum load bid cost, energy bid cost, transition bid cost, pump shut-down cost, pumping cost, ancillary services bid cost, and RUC availability payment ???To calculate BCR, the commitment costs and the energy and AS bid costs are used as inputs to calculate a resource's net



Optimal offer-bid strategy of an energy storage portfolio: A linear quasi-relaxation approach The new energy storage, We develop a decision-making tool based on a bilevel complementarity model for a merchant price-maker energy storage system to determine the most beneficial trading actions in pool-based markets,



ENERGY STORAGE BID WINDOW 1 BIDDERS" CONFERENCE 15 MAY 2023. In partnership with OPENING REMARKS by. ENERGY STORAGE BID WINDOW 1. From the IRP 2019, the IPP Office is mandated to procure over 28.5 GW of new generation capacity from the private sector by 2030. Respective IRP 2019 Target by 2030 (MW) ???



# THE LATEST PRICE OF ENERGY STORAGE BID



Luma anticipated signing Standard Offers by the third quarter of 2024 to deploy the new BESS resources by the end of 2025. In January this year, residential power prices averaged US\$0.2112/kWh versus US\$0.1545 US average, commercial at US\$0.2266/kWh against a US\$0.1268 average and industrial power on Puerto Rico cost US\$0.2180kWh versus



However, none were successful, with only solar-plus-storage bids awarded capacity. The prices for successful bids ranged between ???0.0674/kWh (US\$0.073/kWh) and ???0.0745/kWh (US\$0.0745/kWh) and the average volume-weighted price was ???0.0709/kWh, which ended much lower than the price ceiling of ???0.0918/kWh and the previous innovation