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Georgetown Large-Scale Battery Storage





Overview

Are battery energy-storage technologies necessary for grid-scale energy storage?

The rise in renewable energy utilization is increasing demand for battery energy-storage technologies (BESTs). BESTs based on lithium-ion batteries are being developed and deployed. However, this technology alone does not meet all the requirements for grid-scale energy storage.

What types of battery technologies are being developed for grid-scale energy storage?

In this Review, we describe BESTs being developed for grid-scale energy storage, including high-energy, aqueous, redox flow, high-temperature and gas batteries. Battery technologies support various power system services, including providing grid support services and preventing curtailment.

How big will a battery energy storage system be in 2024?

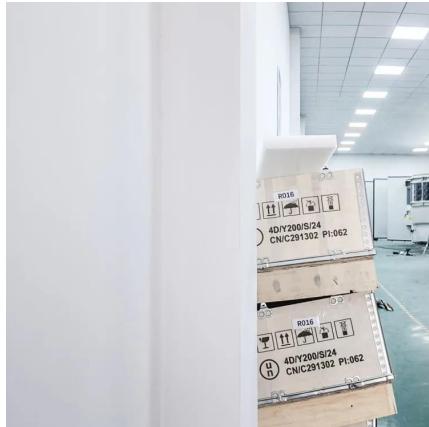
After record growth in 2024, U.S. battery energy storage systems (BESS) could grow from more than 26 gigawatts (GW) of capacity—enough to power 20 million homes—to anywhere from 120 GW to 150 GW by the end of 2030, depending on the range of projections.

What are battery energy storage systems?

Battery energy-storage systems typically include batteries, battery-management systems, power-conversion systems and energy-management systems 21 (Fig. 2b).



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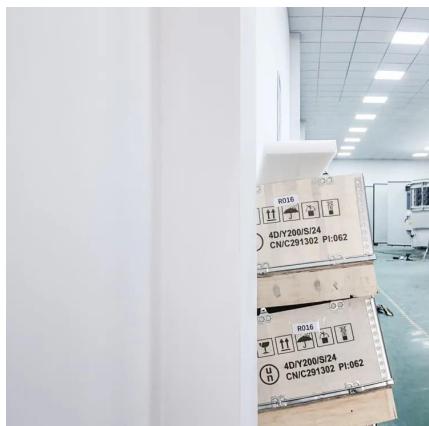


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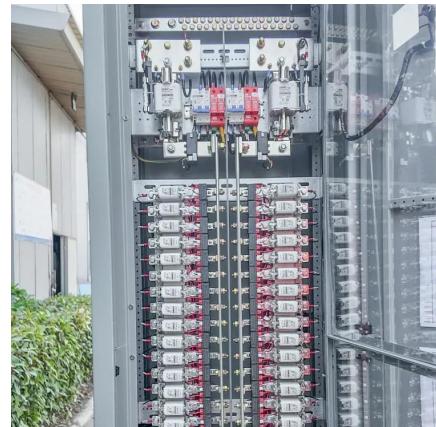


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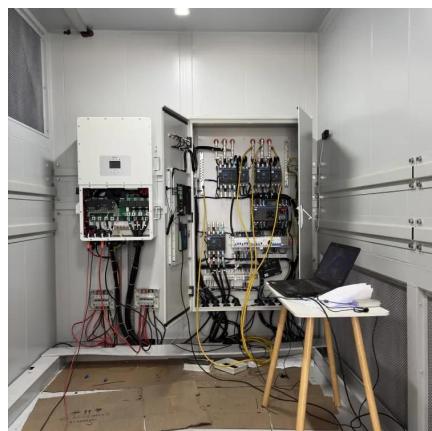
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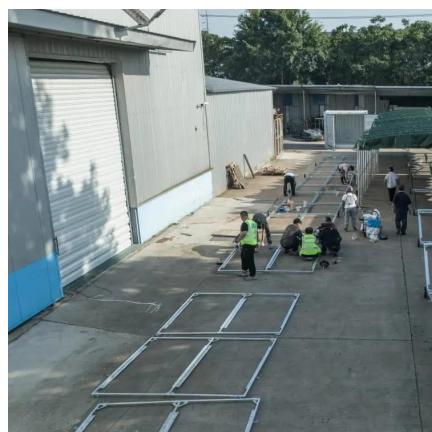
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