

Low temperature energy storage power generation





Overview

What are thermal storage technologies?

1. Abstract Thermal storage technologies have the potential to provide large capacity, long-duration storage to enable high penetrations of intermittent renewable energy, flexible energy generation for conventional baseload sources, and seasonal energy needs. Thermal storage options include sensible, latent, and thermochemical technologies.

What is thermal energy storage?

Thermal energy storage in buildings can be used to adjust the timing of electricity demand to better match intermittent supply and to satisfy distribution constraints. TES for building heating and cooling applications predominantly utilizes sensible and latent heat technologies at low temperatures (i.e., near room temperature).

How httes can be used for power generation?

A high impact can be achieved through development of HTTES storage and charging/discharging systems. Additionally, HTTES with solar thermal or nuclear input and reservoir thermal energy storage systems show promise for power generation applications despite utilizing heat for energy input rather than electricity.

Why do we need thermal storage systems?

By decoupling heating and cooling demands from electricity consumption, thermal storage systems allow the integration of greater shares of variable renewable generation, such as solar and wind power. They can also reduce the peak electricity demand and the need for costly grid reinforcements, and even help in balancing seasonal demand.



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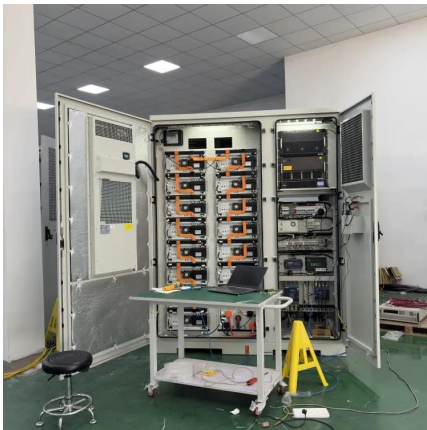
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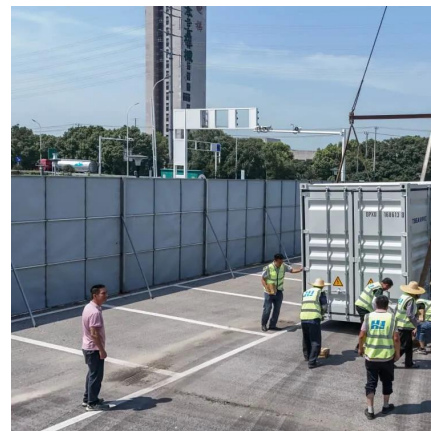
6 Low-temperature thermal energy storage

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Thermal Energy Storage Technologies

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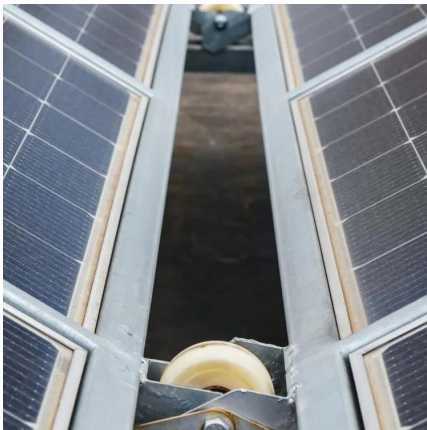


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