

# **Trends in energy storage solar thermal power generation**





## Overview

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Can thermal energy storage be used in power generation?

Thermal energy storage in power generation Compared to other renewable energy technologies, a significant advantage of concentrated solar power (CSP) technologies is their capacity to integrate with extensive thermal storage systems or hybrid subsystems [48, 49].

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 solar thermal energy storage?

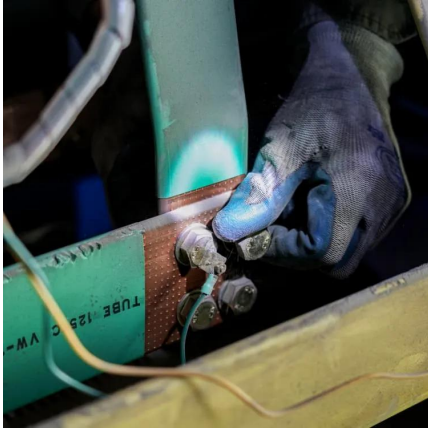
Sensible and latent thermal energy storage systems efficiencies over 90 %. Solar thermal energy storage is considered one of the key technologies for overcoming the intermittency of solar energy and expanding its applications to power generation, district heating and cooling, and industrial heat supply.

How much energy does a solar energy system store?

The system's theoretical energy storage capacity, energy storage density, thermal efficiency, and coefficient of performance were estimated, respectively, as 61 kWh, 115 kWh/m<sup>3</sup>, 78%, and 0.97.



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