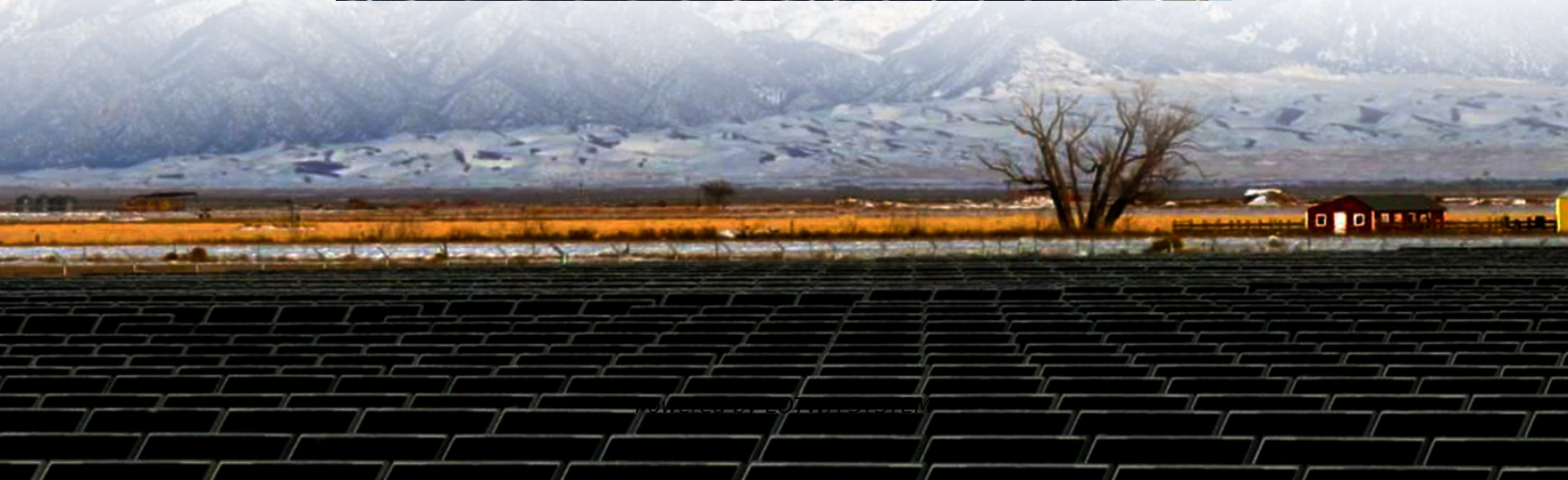


# **Comprehensive utilization of solar power generation and energy storage**





## Overview

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What is a comprehensive solar energy system?

A comprehensive solar energy system draws upon the synergy of three key components: photovoltaic (PV) technologies, solar thermal systems, and energy storage solutions. In recent years, significant advancements have been made in these three components, revolutionizing the efficiency, scalability, and reliability of solar energy systems.

Can solar thermal systems and energy storage improve system performance?

Researchers have explored the potential synergies between PV technologies, solar thermal systems, and energy storage to enhance overall system performance, increase energy utilization, and improve system economics.

Can energy storage improve self-consumption of solar energy?

Furthermore, the integration of energy storage with PV and solar thermal systems has been explored to enhance the self-consumption of solar energy and increase system reliability. For example, Yao et al. (2020) analyzed the synergies between PV, solar thermal, and energy storage systems in a residential microgrid.

What is a concentrating solar power system?

Concentrated solar power (CSP) systems can utilize various configurations, such as parabolic troughs, dish Stirling systems, and solar power towers. The mechanism of concentrating solar energy in a solar power tower solar concentrator is shown in Figure 4.



## Comprehensive utilization of solar power generation and energy storage

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