

Feasibility study of energy storage in solar power stations





Overview

How reliable is a PV plant with energy storage?

The PV plant with energy storage has excellent economic performance and poor reliability, and the system with only a battery and that with only the TES can achieve an LCOE of less than 0.155 USD/kWh.

Does a PV plant have an energy-storage system?

The PV plant with an energy-storage system has a preeminent economic performance and poor reliability. In contrast to the current scenarios, the PV plant with only the integrated battery has superior economic performance than that with only the incorporated TES for the same value of LPSP.

What is the operational strategy of a solar power system?

The operational strategy of the system is as follows. First, the PV plant power generation and receiver absorb solar radiation energy. The PV plant has the highest priority, and its total power generation can satisfy the grid demand depending on the electricity that can be converted by the inverter.

What are the different types of energy storage systems?

There are two available power-generation modes (PV plant and CSP) and two energy storage modes (electricity storage and thermal storage system). One combination may be transformed into another combination when the capacities of some components become zero in the calculation.



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