

Do solar thermal power plants affect economic performance?

This paper investigated the economic impact of solar thermal power plants assessed in the literature. Several factors that impact on the economic performance of solar thermal power plants were identified including the type of solar thermal technology, DNI values, plant capacity, cooling method and the inclusion of thermal energy storage.

Can solar thermal power plants be economically assessed?

Systematic literature review using Web of Science, Science Direct, Scopus and IEEE Xplore databases was conducted to identify studies that performed economic assessments of solar thermal power plants including integrated solar combined cycle power plants and hybrid solar thermal plants.

What is the economic assessment of a solar thermal plant?

The economic assessment of a solar thermal plant covers its whole life cycle from raw materials extraction, manufacturing of components, construction of the plant, operation, maintenance and its end of life disposal costs.

What is techno-economic analysis of solar thermal systems?

The techno-economic analysis of solar systems is an unavoidable stage to assess the systems' performance from energetic and economic perspectives, and it is of great interest to provide the stakeholders with sufficient information for their decision-making.

3.1. Performance evaluation of solar thermal systems

How can solar thermal power plants improve the performance of power plants?

Multiple requests from the same IP address are counted as one view. Solar thermal power plants are an alternative for the future energy context, allowing for a progressive decarbonisation of electricity production. One way to improve the performance of such plants is the use of supercritical CO₂ power cycles.

What is the overall efficiency of solar thermal plants?

On the other hand, the overall efficiency of solar thermal plants is a key indicator that reflects the performance of the system's energy conversion process to the input solar energy received on the solar collector's aperture area, as expressed by Eq. (1.8).

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