

Books related to solar thermal power generation

What is solar thermal plant?

Solar thermal plant is one of the most interesting applications of solar energy for power generation. The plant is composed mainly of a solar collector field and a power conversion system to convert thermal energy into electricity.

Which thermodynamic cycle is used for solar thermal power generation?

Rankine, Brayton, and Stirling cycles are commonly used thermodynamic cycles for solar thermal power generation. The integration of thermal energy storage and hybridization of solar thermal energy systems with conventional power generation systems improves the performance and dispatchability of the solar thermal systems.

What are solar thermal technologies for power generation?

This chapter also covers the recent developments in solar thermal technologies for power generation. In recent times, solar thermal technologies are integrated with conventional fossil-fuelled power plants as well as other renewable energy sources such as biomass, geothermal to improve its performance.

When was solar thermal technology invented?

The power generation for commercial applications using solar thermal technologies was started in 1985. In the present scenario, solar thermal technologies are getting more attention among other renewable energy technologies as it has high reliability and dispatchability because of its low-cost storage capability.

What are the different types of solar energy technologies?

Solar energy technologies are classified into two major categories, namely solar thermal and solar photovoltaic (PV) technologies. The first one exploits solar irradiation for thermal energy production by means of solar collectors and heat transfer thermal fluids to carry the absorbed solar energy to the end user.

How to compare the different solar thermal power generation systems?

To compare the different solar thermal power generation systems, some key characteristics/parameters are important to analyze the performance of the power generation system. Some of those parameters are discussed as follows: Aperture is the plane of entrance for the solar radiation incident on the concentrator.

Various topics covered in this book include introduction and overview of solar energy, solar PV generation, solar thermal generation, innovative applications of solar energy, smart energy system, smart grid and sustainability, solar energy ...



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