

عنوان مقاله:

Enhancing Optical and Thermodynamic Analysis of Linear Parabolic trough Solar Thermal Power Plant using Nanofluid

محل انتشار:

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خلاصه مقاله:

One of the main problems facing humanity today is the use of fossil fuels. To solve this problem and worry about the energy crisis due to the lack of these resources, renewable energies can be replaced. One of the biggest sources of clean energy is solar energy, which can be used in solar thermal power plants. In this study, aluminum oxide nanofluid with water has been used in linear parabolic solar combined thermal power plant with Rankine cycle, and the energy efficiency and exergy of this power plant have been investigated by the nanofluid used and the storage tank. Also, this power plant has an energy storage tank with molten salt so that the amount of energy needed at night can be provided in the absence of sunlight. Energy and exergy analysis equations of this power plant have been done with the help of EES software. The result of this analysis is that the exergy efficiency of the solar system is ۱۶.۲۷% and the energy efficiency is ۵۹.۷۳%.

کلمات کلیدی:

Absorber Tube, Aluminum Oxide-Water Nanofluid, Exergy analysis, Linear Parabolic Collector, Molten Salt Thermal Tank

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