High temperature trough solar integrated system

DOE funds solar research and development (R& D) in parabolic trough systems as one of four concentrating solar power (CSP) technologies aiming to meet the goals of the SunShot Initiative.

This paper presents a comprehensive analysis of this medium-high temperature solar-integrated energy system in terms of energy, exergy, economics, and environment.

Gain and parameters of the controller of the solar power plant are optimized by utilizing automation for operation of solar concentrator with parabolic Trough collector. Data acquisition and...

On the one hand, flat plate collectors are cheaper and have higher efficiency than parabolic trough collectors at low temperature levels. On the other hand, parabolic trough collectors retain high ...

Figure 3 illustrates a flow diagram of the simulated CSP and high temperature electrolysis (CSP-HTE) process, including key components of the CSP system, O-SOEC subsystem, heat recuperation, trim ...

Therefore, this research offers a thermodynamic evaluation of a novel integrated system driven by solar energy that aims to produce power, heating and freshwater.

In regions with abundant solar energy, solar water disinfection (SODIS) offers a sustainable strategy to improve drinking water access, especially in rural, off-grid communities. This study presents a ...

High-temperature solar technology (HTST) is known as concentrated solar power (CSP). It uses specially designed collectors to achieve higher temperatures from solar heat that can be used for ...

In this work, a novel PTC system integrated with solar photovoltaics (PTC-PV) is proposed. The PV panels have a narrow width which is the same as the diameter of the parabolic trough receiver ...

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This paper proposes a solar-integrated energy system at medium-high temperature (i.e., working temperature >300 °C) for power generation, desalination, and sodium hydroxide (NaOH) production.

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