

Trough solar power generation system model

Can a parabolic trough solar thermal power plant be improved?

Abstract As a promising application of solar energy, parabolic trough solar thermal power generation technology is one of the most important methods of solar thermal utilization. This paper takes the SEGS VI parabolic trough plant as the research object and proposes an improved 30 MW parabolic trough solar thermal power plant.

Does trough solar thermal power generation improve plant efficiency?

However,statistics have consistently shown that with the development of trough solar thermal power generation technology,the installed capacity of trough solar thermal power generation has been significantly improved,but the overall plant efficiency is still at a low level.

Can thermal models be used to analyze parabolic trough solar collectors?

The review of thermal modeling approaches presents the steady and transient heat transfer analyses of single and two-phase (with direct steam generation) flows. Also, the computational fluid dynamics models used to analyze the physics of parabolic trough solar collectors with a better insight are reviewed and presented.

How trough solar thermal power plant structure is based on SEGS VI plant?

Second,based on SEGS VI Plant,an improved trough solar thermal power generation plant structure that uses a sub-region heating schemeis proposed. Third,the subsystems of the 30 MW power plant are analyzed and an optimization model for the overall plant efficiency is proposed.

Do parabolic trough solar collectors improve performance?

Finally, the studies conducted on the performance improvement of parabolic trough solar collectors are separately examined and presented, these include novel designs, passive heat transfer enhancement, and nanoparticle laden flows. 1. Introduction

Can a parabolic trough concentrated solar power plant be established in Sudan?

These plants can be established and implemented in Sudan,as their potential is considerably high due to the climate conditions in Sudan. This study investigates the design of a parabolic trough concentrated solar power plant in Sudan and analyzes its technical and economic feasibility.

Keywords:TRNSYS, Solar thermal power plant, Rankine cycle, parabolic trough power. Received: 29/09/2019 - Accepted: 10/11/2019 I. Introduction Electricity generation using a hybrid system ...

Parabolic Trough Solar System Piping Model[R]. Subcontract Report 2006. NREL/SR-550-40165: 3-15 ... Yan Qin ÊThermodynamic characteristic research on solar aided coal-fired power ...

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2.1 Parabolic-trough STPS. The concept of parabolic-trough solar thermal technology is to focus the solar beam on the solar collector and to heat the heat transfer oil or ...

Based on above solar field heat transfer model and system electricity production model validation results, current model can be used to evaluate the performance of the solar ...

Downloadable (with restrictions)! In a parabolic trough solar power plant, the steam generation system is the junction of the heat transfer fluid circuit and the water/steam circuit. Due to the ...

As an important way of utilizing solar energy, concentrating solar power technology has received extensive attention, while thermal storage system can remedy the randomness and ...

well as mitigating climate change through greenhouse emissions avoided in electricity generation process. Keywords Concentrating solar power · Parabolic trough · Meteonorm · SAM (System ...

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This study is the first research that presents a thorough description of the advanced control circuits used in the solar field and thermal storage system of a parabolic trough power plant. This power plant was ...



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