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European Solar and Energy Storage Solutions

Tubular Solar Power Generation

Overview

What is integrated solar power generation unit using a tubular solid oxide fuel cell?

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 1012) An integrated solar power generation unit using a tubular solid oxide fuel cell (SOFC) is designed in this paper. The unit features the utilization of concentrated solar power for the heat supply of the SOFC.

Can a tubular solid oxide fuel cell generate solar power?

An integrated solar power generation unit using a tubular solid oxide fuel cell (SOFC) is designed in this paper. The unit features the utilization of concentrated solar power for the heat supply of the SOFC. A mathematic model of the unit is developed and validated against the experimental data from published literature.

What is a solar power tower?

Solar Power Towers (SPT), also denominated Central Receiver Systems (CRS), are set up by a heliostats field which reflects solar radiation into a central receiver located atop a tower. These heliostats track the Sun with two axis. They are also considered as point focus collectors.

What is a solar power tower Jülich?

The solar power Tower Jülich—a solar thermal power plant for test and demonstration of air receiver technology. Proceedings of ISES World Congress 2007 (Vol. I–Vol. V), 2008. Springer, 1749-1753. Google Scholar Hepbasli, 2008 A.Hepbasli A key review on exergetic analysis and assessment of renewable energy resources for a sustainable future.

What are the characteristics of a solar power tower?

The solar power tower has a high concentration ratio that can reach 200–1000. Moreover, the average heat flux density of an absorber ranges

within 300–1000 kW/m2, and the working temperature reaches 1000 °C.

Are solar power towers a promising technology?

All the issues commented above make solar power towers, among other concentrated solar power technologies, a promising technology with commercial possibilities in the mid term. Better performance and cheaper electricity compared with other options seems within reach.

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New Designs of Molten-salt Tubular-receiver for Solar Power ...

Semantic Scholar extracted view of "New Designs of Molten-salt Tubular-receiver for Solar Power Tower?" by M. R. Rodríguez-Sánchez et al. Skip to search form Skip to main For clean and ...

An Integrated Solar Power Generation Unit Using a Tubular

The integrated solar SOFC power generation unit in this paper is shown in Fig. 1. Concentrated solar energy irradiates the porous absorber to convert solar energy to thermal energy, and the ...

A special type of tube receiver unit for solar thermal power generation

Concentrating solar power (CSP) refers to the technology that collects solar energy and converts it into high-temperature thermal energy for heat transfer fluid (HTF), ...

A review of steady-state thermal and mechanical modelling on tubular ...

Downloadable (with restrictions)! Tower systems are forecast to become the dominant CSP technology in the future due to the potential to achieve high working fluid temperatures, ...

Thermal-fluid-mechanical analysis of tubular solar receiver panels

The tubular receiver is one of the most attractive options for the directly heated supercritical CO 2 (S-CO 2) solar receiver, of which tubular panels are the basic modules.Due ...

Liquid-based high-temperature receiver technologies for next-generation ...

To reduce the levelized cost of energy for concentrating solar power (CSP), the outlet temperature of the solar receiver needs to be higher than 700 °C in the next-generation ...

Optimal Design of Solar Receivers in CSP Plants: Effects ...

This work presents a two-stage approach for the design and evaluation of the performance of solar central tubular receivers. First, the unit design is obtained using a mixed-integer nonlinear progr

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