

Photothermal composite compressed air solar container system





Overview

This paper proposes a novel solar-thermal-assisted A-CAES system (ST-CAES), which features a higher inhale temperature of the turbine to improve the system efficiency. Abstract: A 10 MW photothermal coupled compressed air energy storage system is established.



Photothermal composite compressed air solar container system



EconPapers: Photothermal-assisted scheme design and ...

Abstract: The conventional photothermal-assisted scheme adopted by advanced adiabatic compressed air energy storage (AA-CAES) has equal stages of expanders and high-temperature reheaters, and ...

Research on CCHP Design and Optimal Scheduling Based on ...

In response to the country's "carbon neutrality, peak carbon dioxide emissions" task, this paper constructs an integrated energy system based on clean energy. The system consists of three ...



Study on characteristics of photovoltaic and photothermal coupling

This study focuses on the photovoltaic power generation and photothermal energy storage coupled compressed air energy storage system, study the matching law of solar energy and ...

Thermodynamic, economic and environmental investigations of a ...

In this paper, a novel solar heat enhancing compressed air energy storage hybrid system is proposed, which mainly consist of three subsections: wind p...



Design and economic analysis of photothermal coupled compressed air

A 10 MW photothermal coupled compressed air energy storage system is established. The cycle efficiency of the system is increased greatly by adding a solar heat collector.



Composite hydrogel-based photothermal self-pumping system with ...

Therefore, developing a kind of hydrogel with good photothermal stability, high surface roughness, advanced anti-fouling properties (including salt-fouling and biofouling), and consequently ...



Recent advances in carbon-based materials for solar-driven interfacial

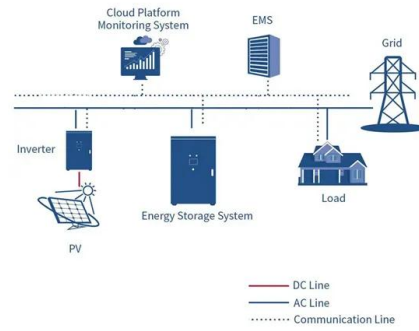
This paper reviews the research progress of carbon-based photothermal conversion materials and the mechanism for solar-driven interfacial photothermal conversion water evaporation, as well as the ...



Thermodynamic analysis of an advanced adiabatic compressed-air

...

To improve its efficiency, an advanced adiabatic compressed-air energy storage system (AA-CAES+CSP+ORC) coupled with the thermal storage-organic Rankine cycle for photothermal power ...



Recent Advances in carbon-based photothermal materials for solar

Solar-driven interfacial desalination systems offer an effective solution to alleviate water scarcity, with the key lying in efficient solar energy utilization and enhanced freshwater production.

...

Review and prospect of compressed air energy storage system

As an effective approach of implementing power load shifting, fostering the accommodation of renewable energy, such as the wind and solar generation, energy storage ...



Photothermal-assisted scheme design and ...

In this paper, a novel photothermal-assisted AA-CAES (PT-AA-CAES) with a simpler structure and suitable for low solar irradiance is designed, which adopts 3-stage expansion and 2 ...



Design and economic analysis of photothermal coupled ...

In this paper, a 10 MW AA-CAES system with photothermal coupling is established, and the parameters of the system are calculated and the effects of environmental changes on the performance of the ...



Research on the Characteristics of Photovoltaic Ice-Cold Storage

The ice-on-coil storage tank is one of the core devices in the latent heat cold storage system. The main objective of this study is to couple the solar photovoltaic cold storage with Cold ...

Study on characteristics of photovoltaic and photothermal coupling

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Carbon nanotube-based photothermal membrane for efficient cold air

In this study, we prepared a multifunctional carbon nanotube-based photothermal composite membrane and applied it to interfacial air heating and purification to meet the high ...



Analysis of compressed air energy storage system coupled with ...

The AA - CAES system coupled with photothermal energy storage can expand the application scenarios of AA - CAES power plants and improve system cycle efficiency.



Design and evaluation of integrated energy system combining solar

Zhang et al. [10] have proposed compressed air energy storage coupled with Solar photovoltaic spraying system to meet the energy needs properties of sprinkler irrigation systems ...

Photothermal-assisted scheme design and thermodynamic analysis of

The conventional photothermal-assisted scheme adopted by advanced adiabatic compressed air energy storage (AA-CAES) has equal stages of expanders and high-temperature reheaters, and is equipped ...



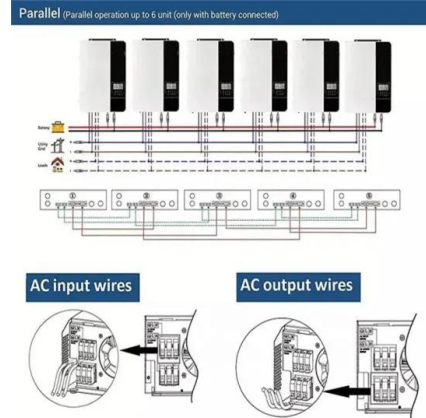
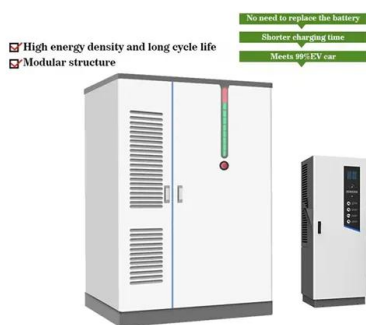
Thermodynamic and economic analysis of a novel compressed air ...

After extensive research, various CAES systems have been developed, including diabatic compressed air energy storage (D-CAES), adiabatic compressed air energy storage (A-CAES), and ...



Design and economic analysis of photothermal coupled ...

Abstract: A 10 MW photothermal coupled compressed air energy storage system is established. The cycle efficiency of the system is increased greatly by adding a solar heat collector. The cycle ...



Design and economic analysis of photothermal coupled compressed air

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