Solar continuous power generation system

Can an all-day solar power generator generate electricity?
In this study,we propose an all-day solar power generator to achieve highly efficient and continuous electricity generationby harnessing the synergistic effects of photoelectric-thermoelectric conversion and latent thermal energy storage.

Can a solar-wind system meet future energy demands?
Accelerating energy transition towards renewables is central to net-zero emissions. However,building a global power system dominated by solar and wind energy presents immense challenges. Here,we demonstrate the potentialof a globally interconnected solar-wind system to meet future electricity demands.

Can a low-cost continuous electricity generator convert diurnal temperature variation to electricity?
In this work, we demonstrate a low-cost continuous electricity generator to convert the diurnal temperature variation to electricity via a charging-free thermally regenerative electrochemical cycle (TREC) with the assistance of a dual-mode thermal regulator, which could produce sustainable and high-power electricity at both daytime and night.

What is an all-day solar power generator?
The all-day solar power generator exhibits an average open-circuit voltage of 6.8 mV during daylight and a remaining 0.9 mV during nighttime. Importantly,the all-day solar power generator achieves dependable outdoor power supply for communication transmission in diverse environmental scenarios.

Summary Thermoelectrical power generator (TEG) proves a promising way that utilizes ambient energy. However, all-day continuous power generation without an artificial ...

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This study presents the development of a solar-driven thermally regenerative electrochemical cell (STREC) for continuous power generation. Key innovations include dual ...

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The multienergy integrated and synergistic thermoelectric generation system achieves an output power density of 4.1 mW/cm 2 ...

The green and low-carbon transformation of the power sector is a multifaceted endeavor, encompassing various aspects such as power generation, transmission, ...

The emergence of 24-hour solar generation marks a fundamental shift in how solar fits into the broader power system. With the ability to deliver electricity around-the-clock, solar ...

A globally interconnected solar-wind power system can meet future electricity demand while lowering costs, enhancing resilience, and supporting a stable, sustainable ...

This integrated architecture enables dual-mode operation: daytime power generation via solar-induced temperature gradient and nighttime electricity production through ...

In this study, we propose an all-day solar power generator to achieve highly efficient and continuous electricity generation by harnessing the synergistic effects of photoelectric ...

Schematic illustration of the continuous electricity generator integrating a charging-free TREC system and a bifunctional solar heating/radiative cooling layer for thermal-to ...

A globally interconnected solar-wind power system can meet future electricity demand while lowering costs, enhancing resilience, and ...

The multienergy integrated and synergistic thermoelectric generation system achieves an output power density of 4.1 mW/cm 2 during the day and a peak power density of ...

A model for the SPV-TEG-RSC system is established and validated, and then is used to study the all-day characteristics of this solar cascade electricity generation system. ...

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