European Solar and Energy Storage Solutions

Greenhouse photovoltaic support Liu Jie

Overview

Which CSG is best for Chinese solar greenhouse?

Total light interception and daily effective accumulated temperature of Chinese solar greenhouse with different lighting roof shapes. According to the above obtained results, the five CSGs with the optimum performance have been determined (S09, S109, S110, S120, S121).

Are solar greenhouses a viable alternative to horticultural production?

Solar greenhouses currently constitute the most energy-intensive branch of agriculture; the energy inputs (fuels and electricity) to meet the heat needs of greenhouses have a major impact on the cost and environmental sustainability of horticultural and floricultural production.

Do solar greenhouses perform well under different climate scenarios?

Solar greenhouses are currently the most energy-intensive agricultural sector. In literature, there is no worldwide mapping of solar greenhouse performance under different climate scenarios. This study analyzes the performance of a Venlo solar greenhouse for 48 localities around the world.

Are organic photovoltaics a smart greenhouse?

Hence, a smart greenhouse with semi-transparent organic photovoltaics (OPVs) integrated into the power-generating roof is highly desirable for modern agriculture 2, 3. Due to the unique band structure of organic materials, OPVs are able to selectively absorb light with a desired wavelength 4, 5, 6.

How much CO2 is reduced by solar photovoltaics in China?

Moreover, through worldwide international trade in solar photovoltaics, China has produced a reduction of over 1000 kgtons of CO2 each year and reached nearly 13000 kgtons in 2016 (Liu et al., 2019).

Why are solar greenhouses the most energy-intensive agricultural sector?

Nowadays, solar greenhouses are the most energy-intensive agricultural sector. The high control of the indoor microclimate for the well-being of the crops allows, on the one hand, the maximum availability of quality products throughout the year, but on the other hand, results in high energy consumption.

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Achieving sustainability of greenhouses by integrating stable semi

Our study highlights the importance of the operational stability of OPVs and the reciprocity between photovoltaic and photosynthetic systems through the integration of the ...

A numerical and experimental study on a novel micro heat pipe PV...

The photovoltaic/thermal (PV/T) module, as an efficient solar energy conversion device, has gained significant interest worldwide. Particularly, the novel PV/T with micro heat ...

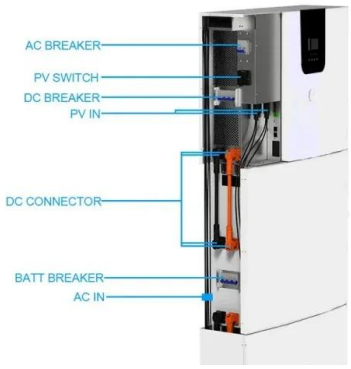
Contribution of international photovoltaic trade to global greenhouse

As solar energy and palm oil are exploitable, prospective, and widely used natural resources (Dey et al., 2021; Liu et al., 2019), these advantages have caught the attention of ...

Multi-criteria techno-economic analysis of solar ...

3060 LIU ET AL. FIGURE 1 Renewable energy

system configurations module, the PV output can be calculated by Equation (1)[29]. P PV = f PV P PV,R (G T G S)[1+? PV (T C -T S)], (1) where ...



Ji Jie's research works , University of Science and Technology of China

Ji Jie's 28 research works with 1,849 citations and 3,657 reads, including: Comparative study on performances of a heat-pipe PV/T system and a heat-pipe solar water heating system

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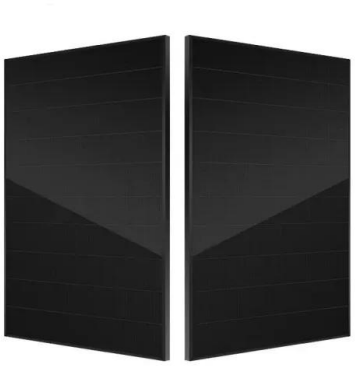

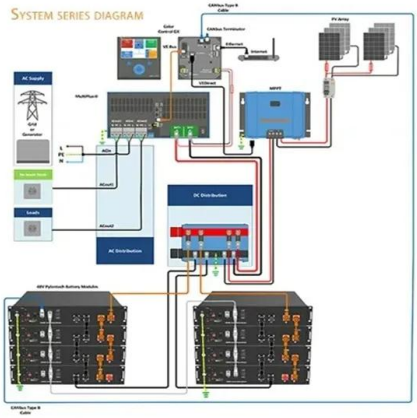

Jie LIU , Engineer , Doctor of Engineering , Research profile

Flexible solar cells have been considered as a promising photovoltaic (PV) technology due to their intrinsic advantages such as lightweight and bendability, which make them very convenient for

(PDF) Mapping photovoltaic power plants in China ...

Photovoltaic (PV) technology, as an efficient solution for mitigating impacts of climate change, has been increasingly used across the world to replace fossil-fuel power to minimize greenhouse gas

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