

What is the PV power potential in China?

Conclusions We estimated the PV power potential in China using an ensemble of 11 PV models driven by high-resolution satellite data. We predicted a national average PV power potential of 242.79 kWh m⁻² in China for 2016-2019, with the east-to-west gradient from 219.81 kWh m⁻² to 273.51 kWh m⁻².

Does cloud influence PV power potential in China?

Such a pattern represents the trend of PV power (Fig. S14a) and solar radiation (Fig. S14b) during 2016-2019, which is mainly regulated by the tendency of cloud (Fig. S14c) rather than that of AOD (Fig. S14d). It confirms again that the perturbations of cloud dominate the variability of PV power potential in China.

What is the spatial heterogeneity of solar energy resource in China?

The solar energy resource shows distinct spatial heterogeneity in China. High energy resource is in the west with a regional maximum above 2000 kWh m⁻² over the Tibetan Plateau (Fig. 1 a).

Why is solar energy underestimated in China?

The missing radiation data over the western domain may lead to the underestimation of the total solar energy in China. Second, the application of 11 PV models reveals an uncertainty of 6-7 % in the estimate of PV power potential.

Does wind speed affect regional PV power generation?

Zhao et al. (2019) estimated that the output of PV electricity was enhanced by 21 % with the increased wind speed of 8 m s⁻¹. These results suggest that key meteorological factors including radiation, temperature, and wind speed should be included in the estimate of regional PV power generation.

How does solar radiation affect PV power potential in China?

With the increase of 1 W m⁻² in solar radiation, the PV power potential in China shows a uniform enhancement of 1.22-1.41 kWh m⁻² (Fig. 8 d). On the national scale, the PV power potential increases by 1.34 kWh m⁻² (0.55 %) per unit 1 W m⁻² solar radiation with almost linear responses to the changes in radiation (Fig. 8 a and Fig. S16).

One global attention and energy challenge is providing pathways for clean fuel and fresh water to transition to a fully sustainable practice of utilizing solar energy and marine ...

Interfacial solar steam generation is a green and promising technique to capture solar energy for brine water desalination; however, it still faces grand challenges of thermal loss and salt ...

Wanyu Li; Guohua Fang ... wind and solar power generation have attracted more and more attention. However, the instability and intermittency of its output have become the bottleneck ...

The hydro-wind-solar hybrid power generation system can be roughly divided into two categories: one is the integration of multiple energy forms in the grid, forming a rich energy ...

where A the surface area of the absorber facing the sun, α represents the solar absorbance, q_{solar} is the solar energy flux, m is the stable evaporation rate of water under ...

China has abundant solar energy resources and a huge market prospect. Tower-type solar power generation technology has high solar energy conversion rate and great room for improvement ...

Frequency control of DFIG based wind power penetrated power systems using switching angle controller and AGC. IEEE Transactions on Power Systems, 2017, 32 (2): 1553-1567. [7] ...

Yu Wang's 12 research works with 29 citations and 487 reads, including: Study on the propagation law of meteorological drought to hydrological drought under variable time Scale: ...

Solar powered steam generation is an emerging area in the field of energy harvest and sustainable technologies. The nano-structured photothermal materials are able to harvest energy from the full solar spectrum ...

As shown in Table 8, the power generation of our study generally agreed with that of Peng and Lu [44] and Cheng et al. [8]. Our study's roof results are contrasted with Peng and ...

Web: <https://www.ecomax.info.pl>

