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China-Africa Communication Base Station Wind and Solar Complementarity

Overview

Which country has the most complementarity between wind energy and solar energy?

At the hourly scale, the complementarity of wind energy and solar energy shows an increasing trend from east to west, with Qinghai, Yunnan and Xinjiang exhibiting the most pronounced complementarity.

How will wind and solar complementarity change in China?

The wind and solar complementarity in China is lower in the east and higher in the west. On an hourly scale, the complementary shows a downward trend, especially in central and eastern China. The peak-valley difference and fluctuation of net load demand will increase in China particularly under SSP5-8.5.

Why is wind and solar energy important in China?

Wind and solar energy generation has become an area of focus for many countries, including China . China has emphasized the importance of advancing renewable energy development and the need to design and build large-scale wind and solar power infrastructure projects in China .

Is there a complementarity between wind and solar energy?

Studying the complementarity between wind and solar energy is crucial for optimizing the use of these renewable resources. Multi-energy compensation systems need to consider multiple metrics, and current research relies on the correlation of single metrics to study this complementarity.

Which regions exhibit greater complementarity of wind and solar energy?

For instance, Ren et al. employed an evaluation index considering the fluctuation state and corresponding amplitude to assess the complementarity of wind and solar energy. They estimated that Jilin, Heilongjiang, Liaoning, Inner Mongolia and other areas exhibit greater complementarity on an hourly

scale.

Are wind power and solar energy correlated with load demand in China?

On the daily and monthly scales, except for the southeast region, the total output of wind power and solar energy is negatively correlated with the load demand in most regions of China, indicating that the characteristics of total output of wind power and solar energy are poorly matched with the daily and monthly characteristics of load.

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