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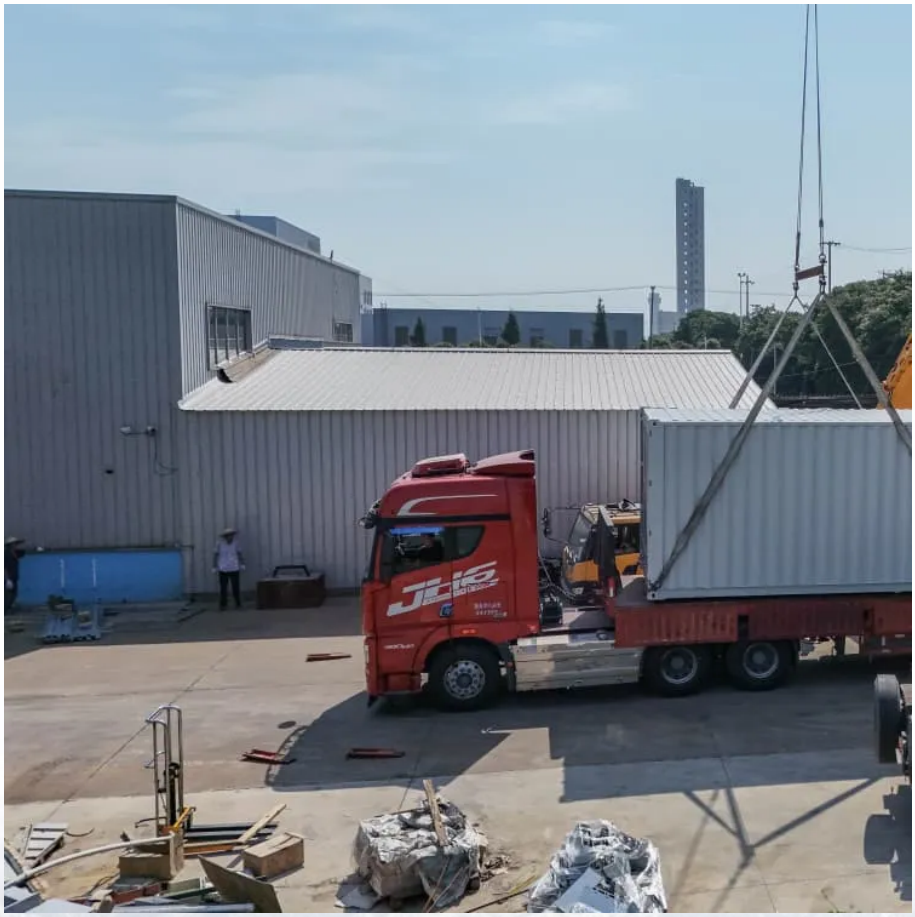
Traditional communication base station wind and solar complementarity



Overview

How can wind and solar energy be optimized for Integrated Energy Systems?

Numerous researchers have focused on optimizing the installed capacities of wind and solar energy in integrated energy systems . Adjusting the wind and solar ratios can significantly reduce the required storage capacity of the system, thereby ensuring a more stable power supply .

Does complementarity support integration of wind and solar resources?

Monforti et al. assessed the complementarity between wind and solar resources in Italy through Pearson correlation analysis and found that their complementarity can favourably support their integration into the energy system. Jurasz et al. simulated the operation of wind-solar HES for 86 locations in Poland.

Which base has the weakest complementary effect between wind and solar energy?

In the EM and JL base, the WSS reached 100 % for only approximately six daytime hours (10 a.m.-3 PM), with the nighttime WCS index also below 50 %. The HS base exhibited the weakest complementary effect between wind and solar energy, characterized by a daytime SCW index exceeding 75 % owing to weak wind energy.

Are wind and solar energy complementary?

In this study, well-validated and used high-resolution reanalysis data were used to explore the complementarity between wind and solar power on multiple time scales across China mainland. Researchers have found that wind and solar energies are strongly complementary from seasonal to hourly time scales.

Should wind and solar energy ratios be integrated in complementary development?

The optimal blending of wind and solar energy ratios in complementary development can significantly reduce the instability of wind and solar energies, thus avoiding investment risks and resource wastage. Nevertheless, current research predominantly concentrates on optimizing wind and solar ratios within integrated energy systems.

Do wind and solar resources have a complementarity metric system?

To this end, we propose a novel variation-based complementarity metrics system based on the description of series’ fluctuation characteristics from quantitative and contoured dimensions. From this, the complementarity between wind and solar resources in China is assessed, and the trend and persistence are tested.

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