

Solar base station wind power complementarity





Overview

How do we evaluate the complementarity of solar and wind energy systems?

The review of the techniques that have been used to evaluate the complementarity of solar and wind energy systems shows that traditional statistical methods are mostly applied to assess complementarity of the resources, such as correlation coefficient, variance, standard deviation, percentile ranking, and mean absolute error.

Can wind and solar PV complementarity be used as a planning strategy?

Notwithstanding these limitations, the result of this work clearly highlights the added value of using wind and solar PV complementarity and electricity criteria as a planning strategy for new VRE capacity deployment aiming to reduce the power flexibility needs, namely, the use of expensive energy storage systems.

Why is spatiotemporal complementarity of wind and solar power important?

Understanding the spatiotemporal complementarity of wind and solar power generation and their combined capability to meet the demand of electricity is a crucial step towards increasing their share in power systems without neglecting neither the security of supply nor the overall cost efficiency of the power system operation.

Does land-based solar-wind complementarity exist in 2021?

Conclusions This study evaluates global land-based solar-wind complementarity from 1950 to 2021 using high-resolution ERA5-Land data at $0.1^\circ \times 0.1^\circ$ (~9 km) resolution, mapping spatial patterns, long-term trends, and seasonal dynamics of solar power density (SPD) and wind power density (WPD) at 100 m hub height.



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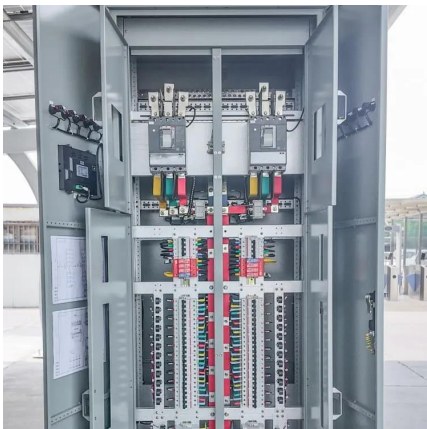
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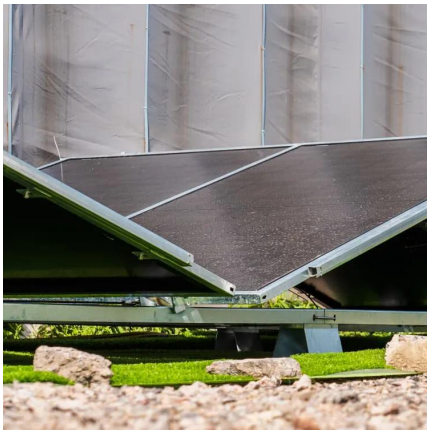


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