

How to discover the complementary relationship between wind and solar power in solar container communication stations

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.

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.

Is there a complementarity between wind and solar power production?

In a considerable complementarity between the wind and solar power production in Portugal was also identified, i.e., when the solar PV output is maximum, wind generation tends to exhibit the minimum values (daytime), and vice versa.

Do primary wind and solar resources complement the demand for electricity?

Couto and Estanqueiro have proposed a method to explore the complementarity of primary wind and solar resources and the demand for electricity in planning the expansion of electrical power systems.

This work proposes a methodology to exploit the complementarity of the wind and solar primary resources and electricity demand in planning the expansion of electric power systems.

In this context, the complementary effects between different intermittent resources have garnered growing attention in the literature since such properties offer a collective capability to ...

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Compared to existing studies, this paper offers a multidimensional analysis of the relationship between the comprehensive complementarity rate and the optimal wind-solar ratio, ...

The article also presents a resizing methodology for existing wind plants, showing how to hybridize the plant and increase its nominal capacity without renegotiating transmission contracts. ...

The hourly load demand can be effectively met by the LM-complementarity between wind and solar power. The optimal LM-complementarity scenario effectively eliminates the anti-peak ...

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In remote areas far from the power grid, such as border guard posts, islands, mountain weather stations, communication base stations, and other places, wind power and photovoltaic ...

The analysis of GDAS wind speed and solar radiation has proved to be an essential source of information, allowing the identification of promising areas for the implementation of wind ...

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A measure of wind-solar complementarity coefficient R is proposed in this paper. Utilizes the copula function to settle the Spearman and Kendall correlation coefficients combined with the ...

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