SOLAR PRO.

SolarInvert Energy Solutions

Where are the wind and solar complementary locations for China-Africa communication base stations

Overview

Are wind and solar energy resources complementary in China?

The results reveal that wind energy and solar energy resources in China undergo large interannual fluctuations and show significant spatial heterogeneity. At the same time, according to the complementarity of wind and solar resources, over half of China’s regions are suitable for the complementary development of resources.

Are weather stations suitable for complementarity of wind and solar energy resources?

In China, 54.29% of the weather stations have good complementarity of wind- and solar-energy resources on the interannual scale, but 45.71% of the weather stations are not suitable for complementary development of wind- and solar-energy resources on the interannual time scale.

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.

Do wind- and solar-energy resources in China have a temporal complementarity?

Based on the China Surface Climate Data Dataset V3.0, we analyze herein the spatial and temporal distribution in wind- and solar-energy resources in China and evaluate via the Spearman coefficient the temporal complementarity of wind- and solar-energy resources in China.

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.

What are the characteristics of wind and solar energy potential in China?

Wind and solar energy potential show similar characteristics in most parts of China, especially in the northern and southern parts of China. A few regions exhibit complementary characteristics, including the southeastern coastal areas and northeastern regions.

Where are the wind and solar complementary locations for China-Af

Assessing the potential and complementary characteristics of China...

Aug 15, 2025 · PV potential is higher in the west and north, and WPD is higher in the southeast. The southeastern region will see significant growth in wind and solar energy potential, while ...

Get Started

Spatiotemporal Distribution and ...

Oct 7, 2022 · China is rich in wind- and solar-energy resources. In recent years, under the auspices of the "double carbon target," the government has ...

Get Started

Low-carbon Development Enhances Wind and ...

Jun 18, 2025 · Using reanalyzed datasets and Coupled Model Intercomparison Project Phase 6 (CMIP6) climate projections, the researchers assessed mid ...

Get Started

High-resolution data shows China's wind and solar energy ...

Jan 15, 2022 · The seasonal patterns show that China should develop wind and solar energy simultaneously, to exploit wind's highest potential during winter and early spring, and solar's ...

Get Started

Massive wind and solar power project in Gansu ...

Dec 22, 2023 · The first one million kilowatt wind and solar power project of China's first 10 million kilowatt multi-energy complementary comprehensive ...

Get Started

Complementarity and development potential assessment of offshore wind

Nov 15, 2023 · The intensification of global energy crisis has attracted worldwide attention on the development of offshore renewable resources. An accurate assessment of spatiotemporal ...

Get Started

China, Africa join hands for bright future

Feb 11, 2025 · China, Africa join hands for bright future Green cooperation brings benefits to tens of thousands of residents on continent

Get Started

Complementarity assessment of wind-solar ...

Jul 10, 2019 · Abstract The inherent complementarity of wind and solar energy resources is beneficial to smooth aggregate power and reduce ramp reserve ...

Get Started

Variation-based complementarity assessment between wind and solar

Feb 15, 2023 · Furthermore, the spatial compatibility between wind and solar resources and hydropower resources in China for supporting the expansion of wind and solar power is ...

Get Started

Optimal site selection for wind-photovoltaic-complemented ...

Jul 1, 2024 · It has become the first

provincial power grid in China with wind power and photovoltaic power generation output exceeding the power consumption of the entire regional ...

Get Started

Assessing the technical and economic potential of wind and solar ...

Sep 1, 2023 · An accurate assessment of wind and solar resources is important for China's future transition to clean energy and the achievement of its carbon-neutra...

Get Started

A novel metric for evaluating hydro-wind-solar energy ...

Nov 1, 2024 · Thanks to the regulation ability of hydropower and the complementarity between hydro-wind-solar multiple energy, the complementary operation of VREs with hydropower ...

Get Started

Potential contributions of wind and solar power to China's ...

May 1, 2022 · China's goal of being carbon-neutral by 2060 requires a green electric power system dominated by renewable energy. However, the potential of wind and solar alone to ...

Get Started

EcoChina , China's pursuit of wind and solar power ...

BEIJING, Jan. 17 (Xinhua) -- From the land to the sea, China's pursuit of green energy has promoted the development of wind power and solar power industries. In the context of the ...

Get Started

China advances green transition, global energy cooperation ...

10 hours ago · China has partnered with over 100 countries and regions in green energy projects and steadily advanced cooperation in fields such as clean energy, infrastructure upgrading ...

Get Started

Baicheng to widen new energy plans to achieve green ...

Dec 24, 2024 · Baicheng, a pioneering

hub for clean energy in Northeast China's Jilin province, is intensifying efforts to develop solar and wind resources alongside energy storage stations, ...

Get Started

Overview of hydro-wind-solar power complementation development in China

Jun 21, 2025 · China has abundant hydropower sources, mainly distributed in the main streams of great rivers.These regions are also rich in wind and solar energy sources; thus, the generation ...

Get Started

Variation-based complementarity assessment between wind and solar

Feb 15, 2023 · The results indicated that (1) there is a complementarity between wind and solar resources throughout China, and the regions rich in wind and solar resources, such as the ...

Get Started

China promotes construction of large-scale wind ...

Jun 15, 2023 · China has commenced construction on several large-scale wind- and solar-powered bases in deserts in recent years. Located mainly in ...

Get Started

An in-depth study of the principles and technologies of ...

technologies that combine wind and solar energy, are particularly important because they improve the stability and efficiency of energy supply. Through the analysis of technological innovation ...

Get Started

Policy dynamics of the 14th Five-Year ...

Aug 16, 2022 · Among which the Three-North deserts and Gobi areas are the core tasks required by the government to accelerate the planning and ...

Get Started

Spatiotemporal Distribution and Complementarity of Wind ...

Oct 7, 2022 · The results reveal that wind energy and solar energy resources in China undergo large interannual fluctuations and show significant spatial heterogeneity. At the same time, ...

Get Started

Application of photovoltaics on different types of land in China

Mar 1, 2024 · As of the end of 2022, China has amassed an impressive 390 million kW of installed PV capacity, occupying approximately 0.8 million km2 of land [3]. With the continuous growth ...

Get Started

Investigating the Complementarity Characteristics of Wind and Solar

Dec 1, 2021 · This study explores the potential of renewable power to meet the load demand in China. The complementarity for load matching (LM-complementarity) is defined firstly. ...

Get Started

Evaluating wind and solar

complementarity in China: ...

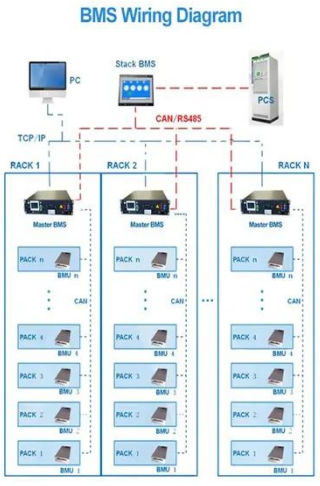
Dec 15, 2024 · Future research efforts could focus on specific focal points in China where wind and solar energy resources are relatively abundant, proposing solutions for harnessing ...

Get Started

Towards sustainable development goals: Assessment of wind and solar

Jul 1, 2024 · The northwest China, endowed with abundant RE sources such as wind and solar power, accounts for over 70% of the country's total resources. The assessment and utilization ...

Get Started



Evaluating wind and solar complementarity in China: ...

Dec 15, 2024 · Abstract Changes in wind and solar energy due to climate change may reduce their complementarity, thus affecting the stable power supply of the power system. This paper ...

Get Started

Assessing the potential and complementary characteristics of China...

Aug 15, 2025 · In-depth analysis of the spatiotemporal changes in wind and solar energy potential and complementarity in China: Based on future predictions under different scenarios, this ...

Get Started

Evaluating the geographical, technical and economic potential of wind

Dec 1, 2024 · The results indicated that (1) there is a complementarity between wind and solar resources throughout China, and the regions rich in wind and solar resources, such as the ...

Get Started

Spatiotemporal Distribution and ...

Oct 7, 2022 · At the same time, according to the complementarity of wind and solar resources, over half of China's regions are suitable for the ...

Get Started

An in-depth study of the principles and technologies of ...

Abstract. In the face of the global energy crisis and the challenges of climate change in the 21st century, there is an urgent need to shift to sustainable energy solutions. Wind-solar hybrid ...

Get Started

Design of Off-Grid Wind-Solar Complementary Power ...

Feb 29, 2024 · 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 ...

Get Started

Spatiotemporal Distribution and Complementarity of ...

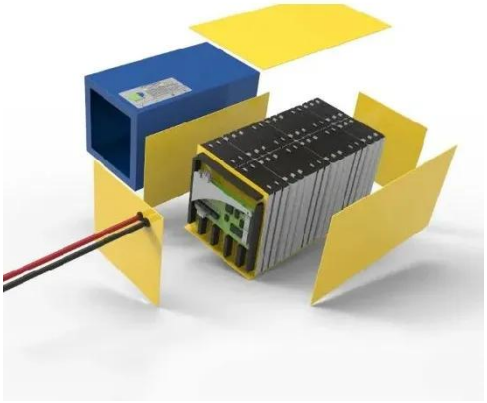
In China, 54.29% of the weather stations have good complementarity of wind- and solar-energy resources on the interannual scale, but 45.71% of the weather stations are not suitable for

Get Started

Overview of hydro-wind-solar power complementation development in China

Jun 21, 2025 · To address climate change, China is positively adjusting the configuration of energy generation and consumption as well as developing renewable energy sources ina ...

Get Started



Optimal site selection for wind-solar-hydrogen storage ...

Mar 15, 2025 · (4) Hydrogen energy storage is incorporated into the site selection consideration of wind-solar complementary power stations, and multiple factors such as resources, climate, ...

Get Started

Extensive renewable energy collaboration ...

Oct 15, 2024 · China and Africa are poised for extensive collaboration in the realm of renewable energy, as the continent's abundant resources align with China's ...

Get Started

Assessing the Potential and Complementary Characteristics of China...

Request PDF , On Apr 1, 2025, Yukun Fan and others published Assessing the Potential and Complementary Characteristics of China's Solar and Wind Energy under Climate Change , ...

Get Started

Contact Us

For catalog requests, pricing, or partnerships, please visit: https://www.persianasaranda.es