Wind Power and Photovoltaic Power Transfer Information Network

What is wind-photovoltaic combined power generation forecasting model based on multi-task learning?
Conclusion This paper introduces a wind-photovoltaic combined power generation forecasting model based on multi-task learning. The proposed model takes into account the spatio-temporal correlation between wind and photovoltaic power. The MIC method is firstly used to analyze the correlation between wind and photovoltaic power.

Can wind and photovoltaic power generation be combined?
However,the integration of wind and photovoltaic power generation through combined forecastingoffers a comprehensive approach that takes into account their coupling relationship. By establishing suitable models and algorithms,accurate power generation forecasts for both energy sources can be achieved.

Is there a correlation between wind and photovoltaic power?
The proposed model takes into account the spatio-temporal correlation between wind and photovoltaic power. The MIC method is firstly used to analyze the correlation between wind and photovoltaic power. Then we propose a novel multi-task learning framework and loss optimization strategy.

Can combining wind and photovoltaic power data improve forecasting accuracy?
Consequently,by exploring the complex correlations between the two energy sources ,,combining wind and photovoltaic power data can greatly improve forecasting accuracywhen wind farms and photovoltaic power plants are located in the same region.

How does wpnet predict wind and PV power?
Additionally,a deep learning-based modelWPNet is developed to predict wind and PV power at specific future time points. Four datasets are constructed based on weather conditions and historical wind and PV power data from the Flanders and Wallonia regions.

Are there missing data for wind and photovoltaic power generation?
There are no missing datain our dataset,but the outliers values of power and meteorological data account for 1.67% and 4.16% of the wind and photovoltaic power generation,respectively. The data in this paper include meteorological and power generation data. Different features may have different dimensions and magnitudes.

1 Introduction. Among the most advanced forms of power generation technology, photovoltaic (PV) power generation is becoming the most effective and realistic way to solve ...

The issue of renewable energy curtailment poses a crucial challenge to its effective utilization. To address this challenge, mitigating the impact of the intermittency and ...

The efficiency (? PV) of a solar PV system, indicating the ratio of converted solar energy into electrical energy, can be calculated using equation [10]: (4) ? P V = P max / P i n c ...

This paper presents the complex reliability of the PV and the wind power system linked to the grid. The power provided by a wind turbine is designed to suit the linear induction generator.

In this paper, a topology of a multi-input renewable energy system, including a PV system, a wind turbine generator, and a battery for supplying a grid-connected load, is ...

the potential of wind and photovoltaic (PV) to power China remains unclear, hindering the holistic layout of the renewable energy development plan. Here, we used the wind and PV power ...

The structure of the paper is organized as follows: Section 2 details the modelling of monitored PV power plants. In Section 3, models for unmonitored PV power plants are presented, along with the establishment of ...

Based on the timing difference and complementarity of the load characteristics of substations on the distribution network side, we conducted an evaluation on the distributed ...

Ref. [27] addressed the fluctuating characteristics of natural wind and the impact of factors such as cloud cover, atmospheric turbidity, and precipitation on wind and photovoltaic power. They ...

This article studied autoencoders for day-ahead wind and solar power forecasts. By considering generative, discriminative, vanilla, and time series autoencoders, we considered a broad range of architectures to find the ...

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