

Why is it important to assess photovoltaic power generation potential in China?

Clear spatial dislocations between PV power generation potential and population distribution and electricity demand. Accurate assessment of the photovoltaic (PV) power generation potential in China is important for the reduction of carbon emission intensity and the achievement of the goal of Carbon Neutral.

Why is forecasting PV power generation important?

Accurately forecasting PV power generation can reduce the effect of PV power uncertainty on the grid, improve system reliability, maintain power quality, and increase the penetration level of PV systems.

What are the different solar PV output power forecasting methods?

We will consider some selected solar PV output power forecasting methods in this section. These methods include persistence, statistical, machine learning, and hybrid approaches. The persistence model involves the use of the solar PV output of the previous day at the same time.

Is there a framework for solar PV power generation prediction?

This review has outlined a pioneering, comprehensive framework for solar PV power generation prediction, addressing a critical need due to the intermittent and stochastic nature of RESs. This systematic framework integrates a structured three-phase approach with seven detailed modules, each addressing essential aspects of the prediction process.

How to evaluate PV output power generation prediction accuracy?

Having a standard way to evaluate the performance of forecasting models would help to standardize the comparison of different models' performances. Among some of the many tools which have been used to analyze the PV output power generation prediction accuracy are MSE, RMSE, nRMSE, MAE, MAPE, MRE, and MBE.

How is PV power generation potential determined?

In the assessment methods used in this study, the PV power generation potential is determined by the theoretical power generation and land suitability scores, some deficiencies in these parts need to be considered.

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