Solar power generation Liu

How can a prediction of photovoltaic power generation benefit China?
Prediction of photovoltaic power generation can effectively mitigate the influences of meteorological and other factors on solar power stations,thereby enabling the efficient deployment of solar energy resourcesin China.

Who is yongqian Liu?
[...] [...] Dr. Yongqian LIU, Professor of Wind Power System, New Energy School, North China Electric Power University, Beijing, China. Currently his main research, teaching, and consultation interests are the theory and technologies on Wind Power Plant, including Design, Intelligent Control, Operation and Maintenance.

Will China's photovoltaic power capacity exceed wind power capacity?
Considering China's policies and future land use projections,Liu et al. believe that China's deployable photovoltaic (PV) power capacity will exceed wind power capacity in the future,reaching 2674 GW. In recent years,China's installed capacity of renewable energy has been increasing steadily.

How to predict the future power generation of PV power station?
Leveraging the NEX-GDDP-CMIP6 data,the study constructed the Vine Copula multi-model ensemble downscaling model. On this basis,the future power generation of PV power station for 2025-2034 was predicted using the future meteorological dataprovided by the downscaling model. Both models constructed for the PV power station have high accuracy.

Will climate conditions affect PV power generation in the future?
Under the influence of future climate conditions,the average annual power generation of the PV power station are projected to be higherin the future period compared to the average annual power generation in the historical period.

How many MWP is a PV power station in Yunnan Province?
The total installed capacity of a PV power station in Yunnan province (Fig. 1) studied in this paper is 40 MWp,and the power generation data spans from June,1,2018,to May,31,2021,with a data frequency of 15 min. The power generation data is converted into daily average data for constructing the long-term power generation prediction model.

Solar photovoltaic (PV) is a promising and highly cost-competitive technology for sustainable power supply, enjoying a continuous global installation growth supported by the encouraging policies ...

Solar power generation forecasting, an essential element to improve the utilization of solar power, has to be implemented and improved for the reduction of net generation costs in the electricity system and curtailment

applied to solar plants [4]. Accurate solar generation forecasts facilitate seamless integration into the power grid, allowing utilities to plan and ...

The experimental data set in this paper is a photovoltaic power generation data set in a certain region. This data set records the relevant power generation data of more than 100 users equipped with solar power generation devices ...

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This method first introduces the construction process of the model and then builds a short-term photovoltaic power generation prediction model based on an adaptive k ...

Due to the large amount of wind and solar power generation data in each province in one year, usually 8760 h, we separate multiple prediction windows for each province and used the moving window ...

At the same time, the future research direction of solar thermal power generation technology is prospected. ... @article{Liu2019SummaryOG, title={Summary of gas turbine power generation technology based on solar power}, author={Can Liu}, journal={IOP Conference Series: Earth and Environmental Science}, year={2019}, volume={300}, url={https ...

Optimizing capacity configuration is vital for maximizing the efficiency of wind/photovoltaic/storage hybrid power generation systems. Firstly, a deep learning-based Wasserstein GAN-gradient ...

generation. The generator can produce, as a proof of concept, a po-wer output of up to 0.1 nW (power output per unit volume up to 1.3 W m 3). Our results demonstrate that such a molecular thermal power generation system has a high potential to store and transfer solar power into electricity and is thus potentially independent of geographical ...

This paper selects the photovoltaic power data in a certain interval of a photovoltaic power generation system and collects 24 sample points every day. It can only ...

Solar power generation is related to climatic conditions, and its high cost and low power generation efficiency have become the main factors restricting its development. ... Solodovnik E V, Liu S ...

DOI: 10.3390/en15228747 Corpus ID: 253822531; Power Generation Scheduling for a Hydro-Wind-Solar Hybrid System: A Systematic Survey and Prospect @article{Chen2022PowerGS, title={Power Generation Scheduling for a Hydro-Wind-Solar Hybrid System: A Systematic Survey and Prospect}, author={Chao Rong Chen and Hualing Liu and ...

Liu Yong and Mengya Zhang launched a questionnaire to investigate the stereotypes and prejudice about solar

PV power among the public in China and found that most of the public have realized the positive aspects of ...

DOI: 10.1016/J.APENERGY.2016.06.081 Corpus ID: 113965574; New solar-biomass power generation system integrated a two-stage gasifier. @article{Bai2017NewSP, title={New solar-biomass power generation system integrated a two-stage gasifier.}, author={Zhang Bai and Qibin Liu and Jing Lei and Hui Hong and Hongguang Jin}, ...

DOI: 10.1016/J.APENERGY.2021.117247 Corpus ID: 237653560; Air pollution and soiling implications for solar photovoltaic power generation: A comprehensive review @article{Song2021AirPA, title={Air pollution and soiling implications for solar photovoltaic power generation: A comprehensive review}, author={Zhengguang Song and Jia Liu and Hongxing ...

Bifacial solar PV power generation is one of the most promising and popular power generation technologies for overcoming environmental pollution and energy shortages. The phenomenon of dust deposition on bifacial PV modules greatly weakens the power generation performance and threatens safe operation. In this work, the dust deposition laws of bifacial PV ...

The proposed novel control strategy has been applied to the stand-alone solar power generation system and is physically illustrated in Figure 10. Initially, the standalone solar power generation system is constructed using ...

The output process of wind and solar power generation is random and non-stationary, so it may be more conducive to predict the power generation law by considering the time-varying characteristics to establish a probability distribution. ... Wang, B.; Liu, X.; Li, Y. Day-ahead generation scheduling and operation simulation considering demand ...

Among renewable energy resources, solar energy offers a clean source for electrical power generation with zero emissions of greenhouse gases (GHG) to the atmosphere (Wilberforce et al., 2019; Abdelsalam et al., 2020; Ashok et al., 2017).The solar irradiation contains excessive amounts of energy in 1 min that could be employed as a great opportunity ...

Liu et al. compared four different solar cell power generation technologies [81]. At that time, PV power generation was the most advanced technology for manufacturing and using PV power generation. ... Solar power generation, particularly photovoltaic (PV) power generation, has been developing rapidly around the world, and its evolution from ...

Liu et al. [133] showed that ... Thermal energy storage intends to provide a continuous supply of heat over day and night for power generation, to rectify solar irradiance fluctuations in order to meet demand requirements by storing energy as heat. As a result, TES has been identified as a key enabling technology to increase the current level ...

The acceleration of carbon peaking and carbon neutrality processes has necessitated the advancement of renewable energy generation, making it an unavoidable trend in transforming future energy systems (Kivanc et al., 2017).The global surge in power generation derived from renewable energy sources, including wind, solar, and biomass, holds ...

In 2015, Ye et al. 11 fed historical power generation, solar radiation intensity, ... X. & Liu, H. Photovoltaic power forecasting based LSTM-convolutional network. Energy 189, 116225 (2019).

Solar power generation is a sustainable and clean source of energy that has gained significant attention in recent years due to its potential to reduce greenhouse gas emissions and mitigate ...

As the most common renewable energy at present, hydropower is geographically limited, while wind energy fluctuates with season or time. 4 It is noteworthy that solar energy is the most abundant energy resource on Earth, and maximizing the use of solar power can potentially meet the intensive demand for power while reducing detrimental effects ...