

During periods of high demand, peak power generation is accomplished by the following operations: azimuth and tilt angle adjustment, usage of angle-selected optical surfaces, photovoltaic...

With the objective of maximizing the photovoltaic self-consumption rate and self-sufficiency rate, a regional installed capacity simulation model was proposed, which provides a method for analyzing the regional spatiotemporal absorption matching capability of SPV power ...

A capacity matching method of wind-wind complementary system based on stochastic programming is proposed to effectively suppress the output fluctuation of new energy generation. Finally, a typical daily wind-solar output scenario is generated according to the measured data, and the capacity ratio of the wind-solar complementary system is ...

An efficient maximum power point tracking (MPPT) method plays an important role to improve the efficiency of a photovoltaic (PV) generation system. This study provides an extensive review of the current status of MPPT methods for PV systems which are ...

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This article shows how PV power plants should be adapted to load ...

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Over the next decades, solar energy power generation is anticipated to gain popularity because of the current energy and climate problems and ultimately become a crucial part of urban infrastructure.

In this paper, we shall focus on the potential contributions of three measures: ...

In order to realize the comprehensive utilization of multiple energy sources in renewable energy ships and improve the utilization rate of renewable energy and system economy, this paper...

This article shows how PV power plants should be adapted to load requirements to achieve peak power output during periods of high demand via the following actions: azimuth and tilt angle modifications, the use of angle-selective optical surfaces, thermal conditioning of PV modules, and smart site selection.

For power supply reliability, this paper optimises the configuration of the three main power sources in the standalone wind-solar-battery hybrid power system, ensuring a low comprehensive cost and a high energy utilisation, simultaneously, and matching the requirements of the power generation and power load consumption. It also makes full ...

With the objective of maximizing the photovoltaic self-consumption rate and self-sufficiency rate, a regional installed capacity simulation model was proposed, which provides a method for analyzing the regional spatiotemporal absorption matching capability of SPV power generation with typical load.

In this paper, the match evaluation method (MEM) is developed based on renewable energy supply/demand match evaluation criteria to size the proposed system in lowest cost. This work is undertaken with triple objective function: inequality coefficient, correlation coefficient, and annualized cost of system. It provides optimum ...

Different wind-solar power generation modes can be adopted according to different wind and solar energy resources and different electricity demand in different regions. Theoretically, the best matching method is to use wind power generation as the main and photovoltaic power generation as the auxiliary in design.

Up to the year 2016, the worldwide operation of the sun-oriented power generation capacity has ascended to 302 GWp, which is enough to supply 1.8 per cent of the world energy demand. The solar power generation capacity has increased by nearly 100 GWp in 2017, which is about 31 per cent more from 2017 [5, 6]. However, the extensive use of a PV ...

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