Solar Energy South Africa

Analysis of wind power generation characteristics

Overview

How is long-term wind power generation potential estimated?

To do so, long-term wind power generation potential is estimated using MCP techniques and the Weibull distribution probability density function to calculate the energy density and estimate energy production. The studies that perform forecasting use a single step (8% of the studies), multiple steps (29%) or do not report the aspect (63%). 3.1.3.

How to predict wind power development?

The prediction of wind power development was also a hot topic in recent years. The main prediction models included regression analysis, least square support vector machine, grey system theory, neural network, time series analysis, and mathematical programming.

How to evaluate wind energy potential?

In this study, to evaluate wind energy potential, the single and mixture of two-parameter and three-parameter Weibull distributions are used as candidate models for wind speed data, and a finite mixture of voM distributions is used for wind direction data.

How is wind power estimated?

Through the monthly wind speed forecast, the wind power potential is estimated. Velázquez et al. (2011a) used similar method to estimate wind power costs of certain sites, but also compared the results of the ANN method with those obtained through the linear MCP method.

Does wind power generation affect electric power systems?

In the energy cluster, Koivisto et al. (2016) analyzed the effect of wind power generation on the electric power systems using a Vector-Autoregressive-To-Anything (VARTA) process with a time-dependent intercept, modeling wind speeds in multiple locations. This wind speed simulation method provided a

risk assessment for the power system.

Is the analyzed location suitable for the development of a wind farm?

Wind potential analysis has shown that the analyzed location is suitable for the development of a wind farm. The analysis was carried out for six different types of wind turbines, with a power ranging from 1.5 to 3.0 MW and a hub height set at 80 m. Wind power potential was assessed using the Weibull analysis.

Analysis of wind power generation characteristics

Analysis of junction temperature characteristics of IGBT module in wind ...

IGBT is the key device to realize power conversion and control in wind power converter. The life of IGBT in wind power converter is closely related to the random fluctuation of wind speed. ...

Contact Us

For catalog requests, pricing, or partnerships, please visit: https://ian-solar.co.za