

How to stabilize wind power generation efficiency

Advanced power electronic systems contribute to increased conversion efficiency by minimizing losses during the energy conversion process. These systems employ techniques such as maximum power point tracking (MPPT) algorithms ...

Wind turbine blades are the primary components responsible for capturing wind energy and converting it into mechanical power, which is then transformed into electrical energy through a generator. The fundamental goal of blade design is ...

Abstract. Numerous studies have shown that atmospheric conditions affect wind turbine performance; however, some findings have exposed conflicting results for different locations and diverse analysis methodologies. In this study, we ...

In the past two decades, clean energy such as hydro, wind, and solar power has achieved significant development under the "green recovery" global goal, and it may become the key method for countries to realize a low ...

The output power of wind energy conversion system (WECS) depends on the accuracy by which the peak power is tracked with the help of maximum power point tracking (MPPT) controller for ...

The wind turbines used to produce renewable energy are also doing a great job. Still, the fluctuations in power production pose a threat to the stability of the grids. These fluctuations ...

To increase wind farm power production, we developed a wake steering control scheme. This approach maximizes the power of a wind farm through yaw misalignment that deflects wakes away from downstream ...

The results show that the average wind speed, wind fluctuation frequency, and wind fluctuation amplitude can affect the performance of system operation and the efficiency of ...

This study aims to investigate the heterogeneity and complementarity of the regional potential for generating hydro, wind, and solar energy to smooth generation variability. A bi-objective mean ...



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