

Can a small-scale wind turbine concentrator operate at low and medium wind speeds?

The main aim of this study is to develop and design a small-scale wind turbine concentrator, to operate mainly at low and medium wind speeds. The computational fluid dynamics (CFD) simulations are used to investigate the wind flow patterns for different types and configurations of concentrators.

Which wind energy technologies are used in the future?

This paper reviews the wind energy technologies used, mainly focusing on the types of turbines used and their future scope. Further, the paper briefly discusses certain future wind generation technologies, namely airborne, offshore, smart rotors, multi-rotors, and other small wind turbine technologies.

How does a wind concentrator work?

Therefore, any small increase in the incident wind velocity yields a large increase in the energy output from the turbine. The main idea of wind concentrator is to increase the wind power in front of the wind turbine in sites with weak to normal wind speeds conditions through overcoming the starting torque.

Why is a wind concentrator attractive in low and medium wind speed?

The techniques of the wind concentrator is attractive in low and medium wind speed due to the fact that the power produced from wind energy is proportional to the incident airspeed raised to the power three and the diameter to the power two.

What are electric machines & drives for wind turbines?

Electric machines and drives are the key enabling technology for wind turbines. The required basic characteristics of an electric machine-drive system for wind power generation are shown as follows.

How a wind power generation system works?

Afterwards, the produced electric power is transferred to grid through a transformer. As can be observed, the electric machine and drive play a key role in the wind power generation system for power conversion, which are the specific subject of this paper.

This paper proposes a wind-photovoltaic-thermal energy storage hybrid power system with an electric heater, which adopts the idea of concentrated solar power plant but omits the expensive solar ...

6 ???· A wind power class of 3 or above (equivalent to a wind power density of 150-200 watts per square meter, or a mean wind of 5.1-5.6 meters per second [11.4-12.5 miles per hour]) is ...

Abstract. This paper evaluates and discusses ways to use five energy resources more efficiently for generating electric power. An analysis of five different 10 MW powerplants was made: a ...



Wind power generation with concentrated wind tube

Schematic of the concentrating solar power plant This paper analyzes the energy storage characteristics of the CSP plant and establishes a joint optimal operation and bidding ...



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