

The role of the electric control system in wind power generation





Overview

What is the control system of a wind turbine?

The control system of a wind turbine is presented. Specifically, the supervisory control system and the power production control system are introduced. The power production control comprises of the generator torque control and the pitch control subsystems, the power electronics and the grid connection. Yaw control is also discussed.

How do wind generators contribute to grid stability?

Hence, wind generators are required to contribute to grid stability through active power and frequency control to help to maintain the power balance in power systems [52]. Grid codes specify the permitted range of voltage and frequency variations that wind generators must adhere to during grid connection.

What is the role of wind power generator in a wind power system?

er, plays an important role in wind power systems. It is an essential part for integrating the variable-speed wind power generation units to achieve high efficiency and high performance in power systems. Even in a fixed-speed wind turbine system where wind power generators are directly connected.

How to control a wind turbine?

ly using proportional–integral (PI) controllers. Most wind turbines use the pitch angle of the blades to limit the power when the turbine reaches the nominal power. Below the maximum power production, the wind turbine will vary the speed proportional to the wind speed and keep the pitch angle constant. Fig. 9. Control of wind turbine



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