

Wind turbine control system





Overview

What is wind turbine control?

Refer to for a more detailed description of wind turbine control, especially for the four combinations of variable and fixed pitch together with variable and fixed speed. There are numerous generator torque controllers in use by the wind industry, and most of these are proprietary.

What is a pitch controlled wind turbine?

Pitch controlled WTs have an active control system which varies the pitch angle of the turbine blades to decrease torque and rotational speed in WTs. This type of control is usually employed in high wind speeds only where high rotational speeds and aerodynamic torques can damage the equipment.

How are wind farms controlled?

The focus of is coordinated control of wind farms over three control levels: central control, wind farm control, and individual turbine control. Under-load tap changing transformers and convectional mechanical switched capacitors are used to implement the control strategies, which can be implemented on both fixed- and variable-speed turbines.

Can variable speed wind turbines be controlled?

Control of variable-speed wind turbines: Standard and adaptive techniques for maximizing energy capture. IEEE Control Systems Magazine, 26(3):70–81, June 2006. K. Stol and M. J. Balas. Periodic disturbance accommodating control for speed regulation of wind turbines. In Proc. AIAA/ASME Wind Energy Symp., pages 310–320, Reno, NV, 2002.



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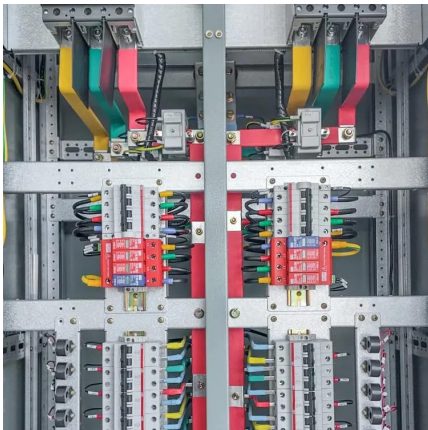
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