ContainerPower Energy Solutions

Bhutan wind power generation main control system

Overview

Renewable energy is being embraced globally as a viable alternative to conventional fossil fuels generators. This is in direct response to the challenge of depleting fossil fuel reserves and its impact on e.

Which controllers are used in small wind energy conversion systems?

The conventional controllers are the most commonly used in small wind energy conversion systems. These usually consists of a PID/PI controller for rotor speed and generated power control. These controllers are more suitable for small WT systems.

Why are control systems incorporated into wind turbines?

Control systems are incorporated into WTs to enhance the ability of the WTs to cope with the variability of wind in producing energy in a cost effective and reliable manner. Fig. 1. Installed global wind capacity.

What variables can be used to control a wind turbine?

Variables such as rotor speed, output torque, wind speed, pitch angle and terminal voltage or a combination of these can be used as the input variable to the controller. ANN is suitable for WT control in situations where the aim is optimization of power at wind speeds above the rated wind speed.

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 does a wind turbine work?

An electronic signal is generated which pitches the turbine blades out of the wind when the power level goes above the prescribed safe level. The turbine blades are pitched or turned back into the wind at an optimal angle of attack to catch the wind when the power level gets lower.

What are the objectives of wind energy research?

As seen from available literatures, safety enhancement, reliability, reduction of production cost and improvement in power quality has been the focus of wind energy research. To achieve this objectives, it is very important to put in place appropriate control strategies that can deal with multiple objective problems.

Bhutan wind power generation main control system

Contact Us

For catalog requests, pricing, or partnerships, please visit: https://www.websparafotografos.es