Direct-through wind power generation system control

Abstract: With the transition of energy production towards clean and renewable sources, wind power has gradually become a dominant component in power generation systems. When grid faults occur, they ...

To enhance the control performance of the proposed wind system, an Adaptive Neuro-Fuzzy Inference System (ANFIS)-based Backstepping control (BSC) methodology is utilized for both ...

The several studies presented by many authors prove that direct drive generators, especially DD-PMSG are the best choice for wind turbines. Indeed, authors in [3] shows that the direct-drive technology ...

Wind energy is the most promising renewable energy, and it plays a crucial role in sustainable development. This paper"s research content is the converter contr.

Simulation results, conducted in MATLAB/Simulink, show that the system efficiently tracks maximum power points and regulates key parameters. For instance, the PMSG successfully ...

This paper proposes a novel-structured Lyapunov-based back-stepping direct power control (BS-DPC) for an emerging dual-stator brushless doubly-fed wind power generator ...

This paper investigates the current control for a grid-connected direct-drive wind energy conversion system (DDWECS) with a permanent magnet synchronous generator (PMSG), which ...

This chapter explores detailed dynamic modeling, specifically focusing on a variable-speed wind turbine (VSWT) system with a direct-driven D-PMSG for Maximum Power Point Tracking ...

Section 2 introduces the structure and control principles of the direct-drive permanent magnet synchronous wind power system, elucidating the necessity of wind power system providing ...

nergy system F. Khater, A. Shaltout, and A. Omar Abstract--This paper introduces a novel control of wind energy system with directly-driven permanent mag. et synchronous generator (DDPMSG) ...

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