

Application of Direct Power Control in Wind Energy Conversion System

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Abstract: This paper describes the performance evaluation of the direct power control for a three-phase pulse width modulation inverter fed by a variable speed wind energy conversion system. This, to ensure a maximum power point tracking of a wind. Proposed direct power control strategy is implemented in the d-q reference frame. The system modeling and control scheme are implemented on Matlab/Simulink. The simulation results show that the use of the direct Power Control provides nearly sinusoidal input wave form current, constant switching frequency operation, regulation of unity power factor in the connection of the grid side converter with the grid and the maintain of the DC-link voltage constant. Finally, the results verify the validity and effectiveness of the proposed control.

Keywords : Renewable energies, wind energy conversion system, Direct power control, simulation