

Backstepping Controller for a Variable Wind Speed Energy Conversion System Based on a DFIG

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Abstract : In this paper we present a contribution for the modeling and control of wind energy conversion system based on a Doubly Fed Induction Generator (DFIG). Since the wind speed is random the system has to produce an optimal electrical power to the Network and ensures important strength and stability. In this work, the Backstepping controller is used to control the generator via two converter witch placed a DC bus capacitor and connected to the grid by a Filter R-L, in order to optimize capture wind energy. All is simulated and presented under MATLAB/Simulink Software to show performance and robustness of the proposed controller.

Keywords : wind turbine, doubly fed induction generator, MPPT control, backstepping controller, power converter

Conference Title : ICECECE 2018 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Dublin, Ireland

Conference Dates : September 06-07, 2018