

Direct Power Control of DFIG Used in Wind Energy Conversion System

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Abstract : The problems caused by traditional systems on the environment of energy production have succeeded, in the immediate, the utilization the renewable energies for to preserve the environment and to satisfy the energy. So, thanks to the encouragement of governments and the global orientations, the development of wind energy has grown significantly due to the diversity of exploitable areas and to the relatively attractive costs. Therefore, the wind energy is becoming one of the most important renewable energy sources. Indeed, variable speed Wind Energy Conversion System (WECS) have become the industry standard because of their advantages over fixed speed ones such as improved energy capture, better power quality. The WECS described in this work is shown by figure 1. It includes the wind turbine, gearbox, DFIG, and back-to-back converters whereas the stator winding is fed by back-to-back bidirectional converter. In this system, the wind energy is transmitted through the turbine to the three-phase DFIG. This energy is transmitted directly through a bridge rectifier and inverter to the electrical network.

Keywords : Wind energy conversion system; Doubly Fed Induction Generator; Maximum power point tracking; Simulation