

# Study of a double fed induction generator using matrix converter: Case of wind energy conversionsystem

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**Abstract:** Due to the growing of the power electronics, especial attention has been given to the use of new generation of power converters, AC/AC matrix converter to which provide a direct power converter AC/AC, bi-directional power flow, almost sinusoidal input and output waveform. In this paper, we present the performance study of a variable-speed wind turbine based on doubly fed induction generator fed by matrix converter using the maximum power point tracking method to extract the maximum power available. The whole system is presented in d-q-synchronous reference frame. The control scheme is tested and the performances are evaluated by simulation results. The simulation results obtained under MatLab/Simulink show the effectiveness and validity of the considered control.

**Keywords :** Wind turbine, Control, Maximum power tracking, matrix converter, doubly fed induction generator