

## DESIGN OF DOUBLY FED INDUCTION MOTOR

### ABSTRACT

The global electrical energy consumption is rising and there is a sudden increase in the demand of power generation. Large number of renewable energy units is now being integrated to power system for meeting and the rising demand of power generation. Slip ring induction machine in the variable speed wind turbine popularly known as double fed induction generator is mostly used in wind power generation. The main reasons for the popularity of the doubly fed wind induction generators connected to the power network is their ability to supply power at constant voltage and frequency while the rotor speed varies and motor converter handles fraction of stator power. The main goal of my project is to design doubly fed induction generator (DFIG) & to control the active and reactive powers by injecting the proper rotor voltage to the DFIG derived from PI controller so as to maintain the constant terminal voltage. The mathematical model of the machine written in an appropriate d-q reference frame is established to investigate simulations. In order to control the power flowing between the stator of the DFIG and the network, a decoupled control of active and reactive power is synthesized using PI controllers.

