Abstract

A Wind Energy Conversion System (WECS) differs from a conventional power system. The power output of conventional system can be controlled where as power output of a WECS depends on the wind. This paper describes fuzzy logic control of induction generator speed in wind turbine application. The aim of fuzzy controller is to established maximum power delivery to the grid from available wind power. Fully-controlled wind turbine which consists of induction
Fuzzy PI controller for wind Energy conversion system

generator and back-to-back converter is under estimate. This configuration has full control over the electrical torque, full control of the speed, and also supports reactive power compensation and operation under grid disturbances. Fuzzy logic control algorithm has been applied and validated by detailed simulation in MATLAB/Simulink. All system components have been described in detail. All power system components are simulated in MATLAB software for fuzzy control. For studying the performance of controller, different abnormal condition are applied even the worst case. Simulation result can prove the excellent performance of fuzzy control as improving power quality and stability of wind turbine.

References

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Index Terms

Computer Science Emerging Trends in Technology

Keywords

A Wind Turbine Doubly Fed Induction Generator Modelling Simulation Fuzzy Logic Controller Wind
Energy Conversion System