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NEURO-FUZZY LOGIC CONTROL OF MPPT FOR INVERTER BASED WIND GENERATORS

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ABSTRACT

This research work investigates about the wind energy conversion system will receive the extensive attention among the various renewable energy systems by using an expert systems like Neuro-Fuzzy logics. The extraction of the maximum possible power available wind energy is an important area of research among the speed sensor less MPPT control of wind area. This paper discovers a power point tracking (MPPT) Technique for high performance wind turbine with induction machines based on expert systems (Artificial Neural Networks& Fuzzy logic system). In this paper, an ANN has been trained in off-line to learn about wind turbine characteristics of the torque with the wind speed and the speed of the machine which will be deployed in online for measuring the speed of the wind and torque and the fuzzy logic control is proposed here to evaluate the maximum power tracking point by the simulation and the results are shown. The reference speed of the machine is then calculated based on the control of the signal power feedback (PSF). Voltage oriented control of the machine is further integrated with an expert sensor less technique. The proposed method was simulated and conformed on the actual circuit in online.

KEYWORDS: Wind Generation, MPPT, Voltage Control, Computer Simulation, Wind Energy Conversion Systems, Incremental Conductance, Neuro-Fuzzy Systems

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