ABSTRACT

This final project present the application of Type-2 Fuzzy PI Controller as Power Regulator on Doubly Fed Induction Generator (DFIG). DFIG’s advantages are able to extract wind energy optimally and allow the rotor spin on sub synchronous speed and super synchronous speed. Power control in DFIG is employed on rotor side converter by adjusting quadrature current reference based on power reference from tracking characteristic curve. Power control system loop is completed by Type-2 Fuzzy Proportional Integral Power Regulator to optimize the extraction of electric power when the wind speed is increased and compensate system oscillations when the fault ride. Simulation on Matlab Simpower is used to validate the proposed control method.

Keywords: DFIG, Type-2 Fuzzy Logic, Power Regulator, Wind Turbine