

A Linear Active Disturbance Rejection Control for Maximization of Generated Power from Wind Energy Conversion Systems Using a Doubly Fed Induction Generator

Authors : Tamou Nasser, Ahmed Essadki, Ali Boukhriss

Abstract : This paper presents the control of doubly fed induction generator (DFIG) used in the wind energy conversion systems. Maximum power point tracking (MPPT) strategy is used to extract the maximum of power during the conversion and taking care that the system does not exceed the operating limits. This is done by acting on the pitch angle to control the orientation of the turbine's blades. Having regard to its robustness and performance, active disturbance rejection control (ADRC) based on the extended state observer (ESO) is employed to achieve the control of both rotor and grid side converters. Simulations are carried out using MATLAB simulink.

Keywords : active disturbance rejection control, extended state observer, doubly fed induction generator, maximum power point tracking

Conference Title : ICECECE 2014 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Paris, France

Conference Dates : December 30-31, 2014