World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

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

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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 : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020

Open Science Index, Mathematical and Computational Sciences Vol:14, No:12, 2020 publications.waset.org/abstracts/21299/pdf