

## عنوان مقاله:

A Novel Energy Storage System Usage Based on Ultra-capacitor in Variable Speed Wind Turbines (VSWT) for Power Improvement

## محل انتشار:

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## خلاصه مقاله:

Wind power as a renewable energy has the potential to become a clean energy source in almost all countries of the world but, there are lots of technical challenges that need to be addressed in advance. Wind speed variation (WSV) is one of the most important issues. Separate from its mechanical effects on wind turbines (WTs), it causes electrical power variations on WT as well. Doubly Fed Induction Generators (DFIGs) and Maximum Power Point Tracking (MPPT) system have been helpful so far but some problems such as inertia still needed to be solved. Inertia in the WTs causes a delay on MPPT. This paper proposes a novel method to increase WTs output power in which a DFIG equipped with an energy storage system such as Ultra-capacitor helps MPPT system to track the wind variations rapidly by absorption or injection energy during the wind changes. The ultra-capacitor and control system are modeled and simulated in Matlab/Simulink® environment. The simulation results proofs that the proposed system can improve electrical power and increase electrical energy during WSVs. The simulation model will lead to more penetration of .wind power and also enables engineers to optimize the system

## کلمات کلیدی:

Doubly Fed Induction Generator (DFIG), Energy Storage, Power Improvement, Ultra-capacitor, Variable Speed Wind Turbines (VSWT)

## لینک ثابت مقاله در پایگاه سیویلیکا:

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