

عنوان مقاله:

Improving the Reliability of Wind Power System Using Hybrid Energy Storage

محل انتشار:

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خلاصه مقاله:

Wind is one of the fastest growing energy sources in electric power generation since it is virtually pollution free, renewable, abundant, and has received considerable global public support. Wind energy is an indirect form of solar energy furthermore it is stochastic in nature and, as such, is often characterized by means of probabilistic techniques. So there is a need to explore power grid and wind turbine power efficiency, security and stability issues. This is what this paper will study the wind farm generation reliability. In this paper, for increasing the overall wind applications reliability, a hybrid energy storage system (ESS) consist of batteries and super-capacitor (SC) is proposed. For this propose, a probabilistic method to evaluate the contribution of a wind power delivery system, to the overall system reliability was presented. The calculation of reliability, required energy storage capacity and power rating, so the pure energy storage and proposed hybrid energy storage was investigated and compared through simulations. The simulation result shows that the hybrid energy storage can increase the overall reliability of the system. For this purpose, simulations were made in MATLAB/SIMULINK environment

کلمات کلیدی:

Electric power generation, Energy sources, Stochastic, Wind energy, Reliability, Hybrid energy storage

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