Downloaded from jeps.dezful.iau.ir at 22:51 +0330 on Thursday November 12th 2026

Journal of Novel Researches on Electrical Power - Vol. 2- No. 2- Summer 2013

The Impact of Energy Storage Tank on the Dynamic Behavior of Doubly Fed Induction Generator

Seyed Mostafa Hosseini [1], Iman Pourfar [2]

1- Master Degree Student,Department of Electric,Dezful Branch,Islamic Azad University ,Dezful, Iran, smhahvaz@yahoo.com
2- Jundi-Shapur University of Dezful, Dezful, Iran. pourfar@jsu.ac.ir, PhD.

Abstract:

The operation of the wind power plant has problems due to the changing nature of wind and network. Because of the lack of stability in wind speed, wind power plant output is variable. This uncertainty is reduced controllability of wind power plants. Another problem, island power plants from the national grid by the fault. In this situation, an imbalance between power produced and power requirements in the isolated system, whereby away voltage of the desired value. The next problem is specific DFIG, increasing the current of rotor-side converter when the fault is in the network. In this paper, discussed the effect of energy storage tank on the behavior of wind power plant with Doubly Fed Induction Generator in a micro-grid. The purpose of this paper smoothing DFIG output power when changes in wind speed and protect and prevent it from leaving the circuit with the battery and super capacitor energy storage tank with two different connector type. Using simulation done by PSCAD shown that energy storage system has an important role in improving the dynamic stability of the grid and DFIG. Also compare two different control systems have been studied and shown that distributed ESS for internal changes of DFIG and complex ESS for the network faults have greater impact in improving the network.

Keywords: Doubly Fed Induction Generator, energy storage tank, an island, a smoothing power, dynamic stability