عنوان مقاله:

Efficient Method to Identify Islanding Condition for Wind Turbineas Distributed Generation

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خلاصه مقاله:

Distributed generation is increasingly likely to play a major role in electricity supply systems. However,the integration of these units at distribution voltages is a major challenge for utilities. One of theproblems of distributed generation working connected to the network is the unwanted islandingphenomenon causing physical or financial losses. Islanding is one important concern for grid connected distributed resources due to personnel and equipment safety. Several methods based on passive andactive detection scheme have been proposed. While passive schemes have a large non detection zone(NDZ), concern has been raised on active method due to its degrading power quality effect. Reliablydetecting this condition is regarded by many as an ongoing challenge as existing methods are not entirelysatisfactory. The main emphasis of the proposed scheme is to reduce the NDZ to as close as possible andto keep the output power quality unchanged. In this paper, a developed algorithm is proposed based onpassive methods to detect non-islanding protection for wind turbine which is connected to the network.The proposed algorithm is compared with the widely used rate of change of frequency relays (ROCOF)and total harmonic distortion (THD) and found working effectively in the situations where ROCOF andTHD fails. The method is on the basis of the decisions of several parameters. These parameters arevoltage changes, frequency changes, and active and reactive power changes. Different scenarios withvarious loads have been used at different wind conditions and many parameters have been studied inthese experiments to propose the algorithm. Simulation results have been obtained usingMATLAB/SIMULINK software and the effectiveness of the proposed algorithm is shown for thedifferent performances

کلمات کلیدی:

Islanding Detection, DistributedGeneration (DG), WindTurbine, Voltage Changes,Frequency Changes, Rate ofChange of Active and ReactivePower