

Fault Classification in Power Distribution System with Distributed Generation

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Abstract: The primary aim of Power System is to provide uninterrupted power supply to consumers but the performance of Power System is frequently affected by Power Distribution System faults. In order to maintain the continuity of supply and to improve the efficiency of Power System the Power Distribution System fault should be rapidly diagnosed and treated accurately. This paper describes the development of Wavelet-Artificial Neural Network method for classification of Faults in Power Distribution System with Distributed Generation. The disturbances characterized are events from an IEEE 14 bus test system with Distributed Generation. The main purpose of the algorithm is to classify the unsymmetrical faults, single-line-to-ground fault (LG), double line fault (LL) and double line to ground fault (LLG). Along with this some other parameters are also discussed in this work like impact of DG on voltage regulation, impact of DG on harmonics, impact of DG on losses and the impact on short circuit level of the network.

Keywords: Distributed Generation (DG), IEEE 14 bus, ANN, PSCAD

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