

Abstract

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Self-healing Restoration of a Distribution System Using Hybrid Fuzzy Control/Ant-Colony Optimization Algorithm

The restoration process for distribution system grid needs the operation of line switching to restore as many loads as possible for the faulted area. In this paper a multi objective, multi constraint combinatorial optimization problem is formulated to solve the self-healing restoration problem. A hybrid Fuzzy Control (FC)-Ant Colony Optimization Algorithm(ACOA) is proposed using values for P, Q from a SCADA system. Two case studies without/with distributed generation are carried out to evaluate the effectiveness and speed of the proposed algorithm. The obtained results are compared with the conventional ACO to illustrate the accuracy of the proposed hybrid algorithm. Finally, conclusions are discussed.