Abstract

This paper presents the application of modified form of Particle Swarm Optimization as an optimization technique to the reconfiguration of electric distribution systems. The intended reconfiguration is an optimization and decision-making process which considers the maximization of the number of loads supplied associated to the minimization of the number of
closed switches. A novel selection regime for the choosing of global best (gbest) and personal best (pbest) for swarm members in multi-objective particle swarm optimisation (MOPSO) without using external archives have been proposed. It means the algorithm is simple and computer coding is easy to implement to reconfiguration problem. The proposed methodology consists of use of the maximization function of the number of loads supplied and the loss minimization by the application of MOPSO. The developed algorithm has given the optimal solution in a reasonable computational time, compared to the dimension of the distribution system. Simulations for the test systems shows that the proposed MOPSO possesses better ability to finding the optimal Pareto front compared to the NSGA-II and classical PSO.

Reference

- Wu-Chang Wu, Men-Shen Tsai and Fu-Yuan Hsu, “A New Binary Coding Particle Swarm Optimization for Feeder Reconfiguration” IEEE Transactions on Power Systems, vol 2.no. 4 pp 243-249, 2009


Reconfiguration of Electric Distribution Network Using Modified Particle Swarm Optimization


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