Abstract

The Distributed generations (DGs) have number of benefits in the electric power industry, such as improvement of voltage stability, enhancement of reliability and power quality. This paper compares the DG placement result of analytical approach with the Multi-Objective Particle Swarm Optimization (MOPSO). The analytical method is based on a formulation for the power flow problem. A priority is loss sensitivity to determine the best locations of applicant distributed generation units. The multi-objective particle swarm optimization determines the optimal DGs places and sizes. The MOPSO improves voltage profile and stability, power-loss reduction, and reliability enhancement. The results show that the analytical method could lead to optimal or near-optimal result, while requiring lower computational effort.

References


Index Terms

Computer Science
Distributed Systems

Keywords
DG placement, DG sizing, distributed generation, Analytical optimization method, multiobjective particle swarm optimization (MOPSO).