Analysis of Distributed Generation Allocation and Sizing in Distribution Systems via a Multi-objective Particle Swarm Optimization and Improved Non dominated Sorting Genetic Algorithm-II

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Abstract

In the recent era the distributed generation (DG) has a lot of power setups operation. The basic advantage of distribution generation includes reduce Power loss, eco; improve voltage, system upgrading postponement. Also it’s more reliable and environment friendly. We will compare optimization approach with the hybrid particle swarm optimization (HPSO) and the No dominated sorting Genetic Algorithm (NSGA-II). In this study for determining the optimal DG-unit’s size, power factor, and location in to reduce the real power loss in the whole system with HPSO algorithm we can find the solution considering maximization of system load and relative minimum power losses. The second algorithms is improved no dominated sorting genetic algorithm II (INSGA-II) with the help of which multi objective planning problem is resolved is also described here. Sample radial distribution feeder systems are compared here to find the validity of both above mentioned algorithm. In this way updating of the two parameters to find the most effective values has a higher chance of success as compared to any other metaheuristic methods.
References

Index Terms

Computer Science

Algorithms

Keywords

Distributed generation (DG), HPSO, INSGA-II, Metaheuristic optimization algorithms, Power losses reduction