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Abstract

In this paper, a new algorithm is implemented to solve optimal placement of capacitors in radial distribution systems in two ways that is, optimal placement of fixed or Discrete size of capacitor banks (Variable Locations Discrete sizing Capacitor banks-VLDC) and optimal sizing and placement of capacitors (Variable Locations Continues sizing of Capacitors-VLCC) for real power loss minimization and net savings maximization. The new algorithms Bat Algorithm (BA): search for all possible locations in the system along with the different sizes of capacitors, in which the optimal sizes of capacitor are chosen to be standard sizes that are available in the market. To check the feasibility, the proposed algorithms are applied on standard 34 and 85 bus radial distribution systems. And the results are compared with results of other methods like particle swarm optimization (PSO), harmonic search (HS), genetic algorithm (GA) artificial bee colony (ABC) teaching learning based optimization (TLBO) and plant growth simulation algorithm (PGSA), as available in the literature. The proposed approaches are capable of producing high-quality solutions with good performance of convergence. The entire simulation has been developed in MATLAB R2010a software.

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Index Terms

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Keywords

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BAT algorithm

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VLDC etc