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(57) Abstract :

3. Abstract A novel metaheuristic optimization procedure for optimizing electrical distribution system is proposed that may help the system planners to know the minimum and maximum objective values. In which the optimal distribution network reconfiguration (DNR) framework and implementation of modified grey wolf optimization (mGWO) algorithm to minimize power loss reduction and node voltage deviation indices have delineated. The DNR involves nonlinear and multimodal function that has been optimized under practical constraints. For the purpose, mGWO algorithm is employed for ascertaining optimum switching position while reconfiguring the distribution system at a minimum fitness value. In fact grey wolf's update its position linearly from a higher value to zero in the search vicinity that provides perfect balance among intensification and diversification to ascertain the best fitness function and exhibits quick and steady convergence. Moreover, the proposed method seems to be a promising optimization tool for the electrical utilities, thereby modifying their operating strategy of distribution system under steady state conditions. This study is conducted on standard IEEE 33-bus and 69-bus distribution systems, the simulated results have analyzed and compared with several recent methods. It shows that the numerical results have provided, by mGWO is superior among the contestant algorithms.

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