

عنوان مقاله:

A Hybrid Algorithm for Optimal Location and Sizing of Capacitors in the presence of Different Load Models in Distribution Network

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خلاصه مقاله:

In practical situations, distribution network loads are the mixtures of residential, industrial, and commercial types. This paper presented a hybrid optimization algorithm for the optimal placement of shunt capacitor banks in radial distribution networks in the presence of different voltage-dependent load models. The algorithm was based on the combination of genetic algorithm (GA) and binary particle swarm optimization (BPSO) algorithm. For this purpose, an objective function including the cost of energy loss, reliability, and investment cost of the capacitor banks was considered. In addition, the impacts of voltage-dependent load models, considering annual load duration curve, was taken into account. In addition, different types of customers such as industrial, residential, and commercial loads were considered for load modeling. Simulation results for 33-bus and 69-bus IEEE radial distribution networks using the proposed method were presented and compared with the other methods. The results showed that this method provided an economical solution for considerable loss reduction and reliability and voltage improvement.

کلمات کلیدی:

GA, BPSO, GA ، BPSO, Reliability improvement, Loss reduction, Load modeling

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