عنوان مقاله:

Optimal reconfiguration of radial distribution system with the aim of reducing losses and improving voltage profiles using the improved lightning search algorithm

محل انتشار:

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خلاصه مقاله:

In this paper, a modified version of the lightning search algorithm is proposed in order to find the optimal reconfiguration of the switches and locate and determine the optimal capacity of distributed generation sources in the distribution feeder. The main optimization goals are to reduce ohmic losses and voltage deviations in the standard ۳۳-bus and ۹۴-node IEEE feeders. The simulation results show that the effect of the presence of distributed generation sources in reducing ohmic losses and modifying the voltage profile when the network reconfigurations is done correctly. Also, by comparing the results of optimization by lightning search algorithm and genetic algorithm, we can realize the efficiency and accuracy of the proposed algorithm. The use of distributed generation sources in the distribution feeder has reduced losses by about ۴۰% and modified the voltage profile by ۶۶%, while network reconfiguration in the absence of distributed generation sources can reduce losses by ۳۱% and voltage deviation by ۴۸%.

کلمات کلیدی:

Distribution System, Reconfiguration, Distributed Generation, Lightning Search Algorithm,
سیستم توزیع, بازآرایی کلیدها, تولیدات پراکنده, الگوریتم جستجوی صاعقه

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