

عنوان مقاله:

Distributed Generation Effects on Unbalanced Distribution Network Losses Considering Cost and Security Indices

محل انتشار:

مجله مهندسی برق ایران، دوره 1، شماره 2 (سال: 1395)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Due to the increasing interest on renewable sources in recent years, the studies on integration of distributed generation to the power grid have rapidly increased. In order to minimize line losses of power systems, it is crucially important to define the size and location of local generation to be placed. Minimizing the losses in the system would bring two types of saving, in real life, one is capacity saving and the other one is energy saving. In this paper, our aim would be optimal distributed generation allocation for voltage profile improvement and loss reduction in distribution network. Harmony Search algorithm (HSA) was used as the solving tool; the problem is defined and objective function is introduced according to losses, security and cost indices. The applied load flow method is based on the equivalent current injection that uses the bus-injection to branch-current (BIBC) and branch-current to bus-voltage (BCBV) matrices which were developed based on the topological structure of the distribution systems. This method is executed on ۱۳ bus unbalanced distribution system and show robustness of this method in optimal and fast placement .of DG, efficiency for improvement of voltage profile, reduction of power losses and cost

کلمات کلیدی:

Unbalanced radial distribution network, Distribution load flow, power losses, Harmony Search algorithm (HSA), Optimal placement

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