عنوان مقاله:

Optimal Placement of Switching Devices in Distribution Networks Using Multi-objective Genetic Algorithm NSGAII

محل انتشار:

بیست و یکمین کنفرانس مهندسی برق ایران (سال: 1392)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mohammad Reza Mazidi - *Tehran University*

Mohsen Aghazadeh - *Iran University of Science and Technology*

Yousef Ahmadi Teshnizi - *Islamic Azad University of Shahrekord*

Erfan Mohagheghi - *University of Greenwich*

خلاصه مقاله:

The main reason of customer unavailability is the events occurring in distribution networks. Hence, one of the most important issues should be considered is improvingreliability of distribution networks. Installation of switching devices like sectionalizers along the network, positively affectsthe system reliability, but, of course, it involves utility cost. Themain aim of this paper is to determine optimal number and place of sectionalizers in distribution networks. By consideringnon-linear and non-differentiable nature of problem, using common methods to solve the problem is not possible. In thispaper the optimization problem is solved by multi-objective genetic algorithm NSGAII to minimize installation cost of sectionalizers, simultaneously improving reliability indices, i.e. System Average Interruption Duration Index (SAIDI), Expected customer interruption cost (ECOST). Effectiveness of the proposed algorithm is evaluated on a 50 feeder distribution network and simulation results are assessed.

کلمات کلیدی:

Switching devices placement, distribution networks, optimizing reliability of system, multiobjective optimization, Genetic algorithm