عنوان مقاله:

Using the modified shuffled frog leaping algorithm for optimal sizing and location of distributed generation resources for reliability improvement

نویسندگان:

m heidari - *Shahrood University of Technology, Shahrood, Iran*

m banejad - *Shahrood University of Technology, Shahrood, Iran*

a hajizadeh - *Shahrood University of Technology, Shahrood, Iran*

خلاصه مقاله:

Restructuring the recent developments in the power system and problems arising from construction as well as the maintenance of large power plants lead to increase in using the Distributed Generation (DG) resources.DG units due to its specifications, technology and location network connectivity can improve system andload point reliability indices. In this paper, the allocation and sizing of distributed generators in distributionelectricity networks are determined through using an optimization method. The objective function of theproposed method is based on improving the reliability indices, such as a System Average InterruptionDuration Index (SAIDI), and Average Energy Not Supplied (AENS) per customer index at the lowest cost.The optimization is based on the Modified Shuffled Frog Leaping Algorithm (MSFLA) aiming at determining the optimal DG allocation and sizing in the distribution network. The MSFLA is a new mimetic meta-heuristic algorithm with efficient mathematical function and global search capability. To evaluate theproposed algorithm, the 34-bus IEEE test system is used. In addition, the finding of comparative studiesindicates the better capability of the proposed method compared with the genetic algorithm in finding the optimal sizing and location of DG's with respect to the used objective function

کلمات کلیدی:

Distributed Generation, Reliability, Optimization, Modified Shuffled Frog Leaping Algorithm,Optimization

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