Abstract

Dragonfly Optimization (DO) is a nature inspired optimization technique that imitates the static and dynamic swarming activities of dragonflies. The static swarm possessing smaller number of dragonflies hunts for preys in a small area, while the dynamic swarm with more number of dragonflies travels over long distances; and they represent the exploration and exploitation phases of the DO. This paper applies DO in solving reconfiguration problem of distribution systems with an objective of enhancing the voltage profile. It presents the results of 33 and 69-node distribution systems for illustrating the superiority of the proposed method.

References

Index Terms

Computer Science

Distributed Systems

Keywords

network reconfiguration, dragonfly optimization. Nomenclature BBO – biogeography based optimization, branch-to-node matrix that describes the topological structure of the distribution network, DO – dragonfly optimization, DORM – DO based reconfiguration method, GA – genetic algorithm, current in branch between nodes-k and -m, maximum permissible current through branch between nodes-k and -m, LVM – lowest node voltage seen in the network, NVD – net voltage deviations, number of nodes, binary variable that represents status of -th tie switch, PSO – particle swarm optimization, VPI – voltage profile improvement, voltage at node-m, weight coefficients, a set of limit violated branches.