Abstract

The network reconfiguration is reshaping of the network system with supporting of sectionals/tie switches so as to reduce the power loss and to improve the voltage profile of the system. This paper presents the reconfiguration of a network system with location of distributed generation (DG) to reduce power loss and in order to improve the voltage stability of the radial distribution systems (RDS). In this approach, the objective function is formulated based on the various technical issues such as power losses, thermal limit, voltage profile and stability of the system. The network reconfiguration problem is a nonlinear optimization problem; a chaotic artificial bee colony (CABC) algorithm is implemented to find the optimal solution of this approach. It is one of the enhanced versions of artificial bee colony algorithm. Two different cases are considered of this approach such as (i) only reconfiguration and (ii) reconfiguration with DGs. The efficiency of the proposed algorithm is validated by testing it on 33-node and 69-node radial distribution systems. The simulation results of this proposed approach are compared with other methods available in the earlier report.
References


17. N. Mohandas, R. Balamurugan, and L. Lakshminarasimman, “Optimal location and sizing of real power DG units to improve the voltage stability in the distribution system using

**Index Terms**

Computer Science  
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**Keywords**

Chaotic artificial bee colony, network reconfiguration, distributed generation, distribution system, power loss, voltage stability.