IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, July 2022
Impact Factor: 6.252

To Study of Machine Learning Enabled Steady – State Security Predictor as Deployed For Distribution Feeder Reconfiguration

Prof. Prajakta Kasulkar[1] and Shilpa Damle[2]
Assistance Professor, Ballarpur Institute of Technology, Ballarpur, India[1]
PG Scholar, Ballarpur Institute of Technology Ballarpur, India[2]

Abstract: *Reconfiguration is an indispensable method for loss reduction in power distribution systems and is also used to restore loads in out-of-service areas in case of a fault. This thesis focuses on reconfiguration of radial distribution networks to optimize the power distribution process in the feeders and for voltage profile improvement. Feeder reconfiguration is done to minimize losses for the existing and new topology of the feeder system and for the purpose of maintenance in the distribution system. Distribution network reconfiguration is one of the well-known and effective strategies in the distribution networks which performs by the status management of the network switches in order to obtain a new optimal configuration for the feeders. This study formulates multi-objective distribution feeder reconfiguration along with optimal sizing of distributed generators and capacitors. The prevalent objective functions in the network reconfiguration studies comprise of power loss and voltage deviations that are considered as the main objectives for traditional distribution systems, however, less attention has been paid to the objective functions of reliability and network voltage security in the previous literature. Therefore, the main objective of this study is to improve the reliability and network voltage security by solving the distribution network reconfiguration problem. To this end, the energy not supplied and voltage stability index are defined as the objective functions of reliability and voltage security. A modified gravitational search algorithm is suggested to solve the complex and non-convex optimization problem.*

Keywords: Machine Learning

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