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Soft Computing Applications in Modern Power and Energy Systems

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Chaotic Quasi-Oppositional Moth Flame Optimization for Radial Distribution Network Reconfiguration with DG Allocation

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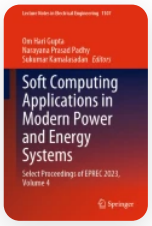

Soft Computing Applications in Modern Power and Energy Systems

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Sneha Sultana, Sourav Paul, Poulami Acharya, Provas Kumar Roy, Devjeet Sengupta & Nirmalya Dey

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Abstract

This research aimed to reconfigure radial distribution networks in the presence of distributed generators (DGs) using the Chaotic Quasi-Oppositional Moth Flame Optimization (CQOMFO) method so as to minimize power losses in the power system network and keep the voltage profile consistent throughout the power system network, which will aid in increasing system efficiency. The primary goal is to demonstrate the proper placement of Distributed Generators (DGs) in the radial distribution network, as well as the reconfiguration and installation of DGs in the radial distribution network. The main advantage of this algorithm is continuous guiding search with changing goals, which can be used for real-time applications with only minor adjustments because the power from distributed generation is constantly changing. This algorithm's efficiency and suitability for real-time applications have been determined by testing for loss minimization on typical 33- and 69-bus radial distribution systems.

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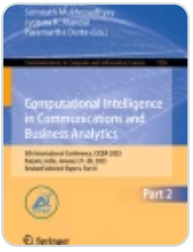

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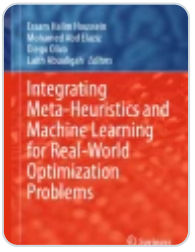

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