عنوان مقاله:

Smart Power Distribution Network Reconfiguration based on the Graph Theory and Particle Swarm Optimization

نویسندگان:

Hassan Chahi - *Department of Electrical Engineering, Sabzevar Branch, Islamic Azad University, Sabzevar, Iran*

Javad Mashayekhifard - *Department of Electrical Engineering, Sabzevar Branch, Islamic Azad University, Sabzevar, Iran*

Ghasem Faezian - *Department of Electrical Engineering, Sabzevar Branch, Islamic Azad University, Sabzevar, Iran*

خلاصه مقاله:

Distribution system reconfiguration occurs with switching operation. It is a simple and low-cost method that reduces system losses without adding additional equipment to the system. Radial structure, connection to the very high power transmission, microgrids, and distributed generation sources in the smart distribution network adds to the complexity of the problem. The Particle Swarm Optimization algorithm is suitable for a multi-objective and non-linear problem. This paper proposes a novel method for reconfiguration of distribution networks. The proposed method is based on Particle Swarm Optimization and Graph theory. The objective functions of the optimization problem are loss reduction, voltage profile, and Reliability improvement of the network. The proposed method has been conducted under consideration distributed generation and micro-grid on Esfarayen medium voltage distribution network. Three different scenarios without/with a distributed generation unit are investigated in this paper. The results also demonstrate that the proposed method is capable of finding the best solution.

کلمات کلیدی:

Distribution System Reconfiguration, Graph Theory, Losses Reduction, reliability, Smart Network

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1705134