Mehdi Akbari Moghadam, Sajad Bagheri, Amir Hosein Salemi, and Mohammad Bagher Tavakoli, 2024, Long-term and multi-objective maintenance scheduling of medium voltage overhead lines based on LP metric method, IET *Generation, Transmission & Distribution*, pp.1–16. DOI: 10.1049/gtd2.13139.

Abstract Planning maintenance of medium voltage overhead lines is one of the most important issues in the studies on power distribution network, which will prevent and reduce unwanted interruption. In this paper, long-term maintenance of medium voltage networks was planned by multi-objective function, including an extended mixed-integer linear model to optimize costs, energy not supplied (ENS), and average interruption duration index (SAIDI). In addition, the uncertainty about the annual growth rate of the load, the increase in the cost of goods and services and the increase in the selling price of energy as well as various constraints are all included in the desired objective function, which is one of the main innovations of this paper compared to other published studies. To apply the uncertainties, information gap decision theory (IGDT) has been used, and to solve the objective functions, LP-Metric method has been used. The proposed method was implemented on the standard 11-bus RBTS network by MATLAB and GAMS. The results showed that three different long-term maintenance plans proposed here lead to the optimization of the annual maintenance costs of network, reduction in ENS and interruption, and increase in the reliability of the network based on the uncertainty of each feeder.

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