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OPTIMAL SECTIONALIZING OF OVERHEAD DISTRIBUTION NETWORKS UNDER THE CONDITION OF DISTRIBUTED GENERATION IMPLEMENTATION

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Abstract

A new approach to solving the problem of optimal sectionalizing overhead distribution networks, which allows one to take into consideration the presence of sources of distributed generation that can continue power supply of pre-selected local load in the post-emergency conditions has been described in this paper. This problem is considered in terms of fixed reliability indices and without these conditions. The developed algorithm is focused on the selection of the composition and placement in electric network switching and protective devices from the

predetermined sequence, taking into account the requirements for coordination of their operation. This permits one to ensure the conditions of a given level of reliability and power supply of local load from sources of distributed generation with minimal total cost. In the case of absence of the requirements regarding the fixed reliability index values, the optimal solution corresponds to the condition of maximizing the reliability per unit of associated costs. The results illustrate the efficiency of the proposed approach. References References 11, figure 1, table 1.

Key words: overhead distribution networks, distributed generation, power supply reliability, switching and protection devices.

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