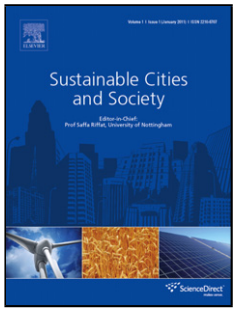

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Author: Farid Hamzeh Aghdam Javad Salehi Sina Ghaemi

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Contingency based Energy Management of Multi Microgrids based Distribution network

Farid Hamzeh Aghdam, Javad Salehi*, Sina Ghaemi

Abstract:
Unexpected outage of distribution network's branches due to load growth, component failures and high penetration of renewable energy resources, may affect the optimum energy management of the distribution network (DN) and decrease the expected profit. Therefore, distribution system operator (DSO) should contemplate the contingency problem in the day-ahead energy management. In this paper, contingency based energy management for the DN involving several microgrids (MGs) known as multi-microgrid (MMG) system has been proposed. In this approach, the DSO considers the probability of the contingency in the energy management of the network and adopts a stochastic optimization based on different scenarios of the contingencies. The capability of reconfiguring the network and presence of the MGs are utilized as two major tools for the DSO to handle unfavorable effects of the contingency problem, which stand on the power flow studies. The recommended energy management approach has been applied to the IEEE 33-bus distribution network modified by the MGs. The obtained results reveal the effectiveness of the proposed CBEM in preventing the network from economic loss. Moreover, this achievement not only is beneficial for the DN, but also advantageous from the MGs' point of view.

Keywords: Energy management, MMG system, Contingency assessment

***Corresponding Author:** Javad Salehi (email: j.salehi@azaruniv.ac.ir)

Corresponding Author's Institution: Azarbaijan Shahid Madani University, Tabriz, Iran