

A multi-objective bi-level optimization framework for dynamic maintenance planning of active distribution networks in the presence of energy storage systems

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Abstract-

Improving the reliability of distribution network and results demonstrate that maintenance services, despite the increase in planning costs, will lead to a significant reduction in operating costs and will be cost-effective in the long-term horizon. The results also indicate that distribution feeder reconfiguration (DFR), despite a 19.62% increase in maintenance costs, leads to a 15.23% reduction in operating costs. Finally, the results illustrate that coordinated operation of storage systems and demand response (DR) programs reduces operating costs by 5.67%.

Index Terms- Maintenance planning; Reliability; Microgrids; Distribution feeder reconfiguration; Demand response program; Epsilon-constraint approach

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