

# Optimal placement of phasor measurement units considering islanding contingency, communication infrastructure, and quality of service

Hossam Eldin Abdallah Talaat ,Said Fouad Mohamed Mekhemar ,Elroby, M.M.H.,  
Hassan, M.A.M.

## Abstract

In this study, the PMUs are placed to operate in normal and islanded cases taking into account power system observability, reliability, Communication Infrastructure (CI), and latency time associated with this CI. Moreover, the economic study for additional new data transmission paths is considered as well as the locations of some PMUs in some buses. The PMUs placement and their communication network topology and link channel capacity are co-optimized simultaneously. Two different approaches are applied to optimize the objective function; Algorithm (BTLBOA) and the Minimum Spanning Tree (MST) algorithm, while the second approach is based on BTLBOA. The proposed approaches are examined using IEEE 118-bus systems

*Heliyon 2019, September*