

Optimal Capacitor Placement in Distribution Systems

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Abstract : In distribution systems, shunt capacitors are used to reduce power losses, to improve voltage profile, and to increase the maximum flow through cables and transformers. This paper presents a new method to determine the optimal locations and economical sizing of fixed and/or switched shunt capacitors with a view to power losses reduction and voltage stability enhancement. General Algebraic Modeling System (GAMS) has been used to solve the maximization modules using the MINOS optimization software with Linear Programming (LP). The proposed method is tested on 33 node distribution system and the results show that the algorithm suitable for practical implementation on real systems with any size.

Keywords : power losses, voltage stability, radial distribution systems, capacitor

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