

Optimal Planning of Dispatchable Distributed Generators for Power Loss Reduction in Unbalanced Distribution Networks

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Abstract : This paper proposes a novel heuristic algorithm that aims to determine the best size and location of distributed generators in unbalanced distribution networks. The proposed heuristic algorithm can deal with the planning cases where power loss is to be optimized without violating the system practical constraints. The distributed generation units in the proposed algorithm is modeled as voltage controlled node with the flexibility to be converted to constant power factor node in case of reactive power limit violation. The proposed algorithm is implemented in MATLAB and tested on the IEEE 37 -node feeder. The results obtained show the effectiveness of the proposed algorithm.

Keywords : distributed generation, heuristic approach, optimization, planning

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