Optimization Method of Dispersed Generation in Electrical Distribution Systems

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Abstract : Dispersed Generation (DG) is a promising solution to many power system problems such as voltage regulation and power loss. This paper proposes a heuristic two-step method to optimize the location and size of DG for reducing active power losses and, therefore, improve the voltage profile in radial distribution networks. In addition to a DG placed at the system load gravity center, this method consists in assigning a DG to each lateral of the network. After having determined the central DG placement, the location and size of each lateral DG are predetermined in the first step. The results are then refined in the second step. This method is tested for 33-bus system for 100% DG penetration. The results obtained are compared with those of other methods found in the literature.