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Minimizing Power Loss in a Distribution System by Optimal Sizing of DG using PSO

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Abstract: *The distribution network becomes more unstable as distributed generator penetration levels climb. As a result, employing cutting-edge solutions is required to increase the network's stability and dependability. Finding the best placement and sizing for distributed generators is necessary, keeping in mind the need to optimize the voltage profile and reduce electrical power losses. In this paper, Particle Swarm Optimizer (PSO) methods are presented for network issue solving when several DGs of various sorts are installed. outcomes are compared using PSO methodologies with those with and without DG to demonstrate how the outcomes have improved. When the suggested approach is used with IEEE 33, It is shown by the findings that the voltage profile, active losses, and reactive losses have been significantly improved. For simulations, MATPOWER-DigSILENT software is employed. The performance and efficacy of the suggested strategies are well demonstrated by the simulated outcomes.*

Keywords: Particle Swarm Optimizer (PSO),Radial Distribution System (RDS),Optimal Power Flow(OPS),Distribution Network (DN),Distributed Generator (DG).

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