

Optimization of Line Loss Minimization Using Distributed Generation

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Abstract : Research conducted in the last few decades has proven that an inclusion of Distributed Generation (DG) into distribution systems considerably lowers the level of power losses and the power quality improved. Moreover, the choice of DG is even more attractive since it provides not only benefits in power loss minimisation, but also a wide range of other advantages including environment, economic, power qualities and technical issues. This paper is an intent to quantify and analyse the impact of distributed generation (DG) in Tamil Nadu, India to examine what the benefits of decentralized generation would be for meeting rural loads. We used load flow analysis to simulate and quantify the loss reduction and power quality enhancement by having decentralized generation available line conditions for actual rural feeders in Tamil Nadu, India. Reactive and voltage profile was considered. This helps utilities to better plan their system in rural areas to meet dispersed loads, while optimizing the renewable and decentralised generation sources.

Keywords : distributed generation, distribution system, load flow analysis, optimal location, power quality

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