Abstract

Integration of alternative sources of energy into a network for distributed generation (DG) requires small-scale power generation technologies located close to the loads served. The move toward on-site distributed power generation has been accelerated because of deregulation and restructuring of the utility industry and the feasibility of alternative energy sources. DG technologies can improve power quality, boost system reliability, reduce energy costs, and defray utility capital investment. This paper presents techno economic analysis of optimally located and sized various DG technologies in a radial distribution system. The impact of DG on the system voltage profile and line losses is also evaluated. This has been accomplished by two parts, part one examine technical benefits of integration of a DG unit to different buses of distribution system and varying DG unit size in a 30 bus radial distribution system. Part two examine the implementation viability of the project; a detailed financial evaluation has been carried out for various DG technologies which are available in the market for commercial use. The results show that there is significant improvement in voltage profile, reduction in line loss and consequently the utility can gain financial benefits when DG is incorporated into the system.
Analysis on Techno-Economic Benefits of a Strategically Placed Distributed Generator in a Radial Distribution System

References

Analysis on Techno-Economic Benefits of a Strategically Placed Distributed Generator in a Radial Distribution System


Index Terms

Computer Science

Power Systems

Keywords

Distributed generation emission optimum location and sizing techno-economic analysis