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Abstract

DG is nothing but a small scale generation unit connected directly to the distribution network or near customer load center. This system may or may not be connected to the electric grid. DG has a limited size of 10MW or less especially when DG is used in a distribution network. DG is installed at the place where it becomes impracticable to build a central generation plant. DG is installed to improve the voltage profile as well as minimize losses. DG allocation is a crucial factor. Optimum DG allocation provides a variety of benefits. But inappropriate DG allocation can cause low or over voltage in the network. In this paper a load flow based method using ETAP software is used to determine the optimum location & optimum size of DG in a 33 bus distribution system for voltage profile improvement & loss reduction.

References

- F. Gonzalez-Longatt,C. Fortoul " Review Of The Distributed Generation Concept. " Attempt Of Unification.

- Anshu Bharadwaj and Rahul Tongia, Member, IEEE "Distributed Power Generation: Rural India-A Case Study".
- A. Kazemi, & M. Sadeghi," Distributed Generation Allocation For Loss Reduction & Voltage Improvement. "
- W. EI-Khattam, K. Bhattacharya, Y. HEGAZY,M. M. A. Salama, " Optimal investment planning for distribution generation in a competitive electricity market, "IEEE Transactions on power systems, vol. 19, no. 3,Aug 2004.
- S. W. ILLERHAUS ,J. S. Versteg, "Optimal operation of industrial CHP based power systems in liberalized energy markets, " IEEE Industry Applications conference, 2000, vol. 2, pp. 901-908.
- R. E Brown et al " Sitting distribution generation to defer T&D expansion "IEEE/PES Transmission and Distribution conference and exposition, 2001. vol2,pp. 622-627.
- B. Kuri, F. Li, "Distributed generation planning in the deregulated electricity supply industry " IEEE/PES General meeting , 2004, vol. 2, pp. 2085-2089.
- N. S. Rau, F. Zeng, "Adequacy and responsibility of locational generation and transmission-optimization procedures "IEEE Tran On Power Systems, vol. 19, No. 4, pp. 2093-2101, Nov 2004.
- EIA, Department Of Energy, " Annual energy outlook 2005", Feb 2005.
- M. E. H Golshan, S. A. Arefifar, "Distributed generation, reactive sources and network configuration planning for power and energy loss reduction", IEE proceedings on generation, transmission and distribution, 16 March 2006, vol. 153, issue 2 ,pp. 127-136.
- A. Cano, F. Jurado, " Optimum location of biomass-fuelled gas turbines in an electric systems",2006 IEEE power Engineering Society General Meeting, 18-22 June 2006.
- M. Gandomkar, M. Vakilian, M. Ehsan, "A combination of genetic algorithm and simulated annealing for optimal DG allocation in distribution networks", 2005 Canadian conference on electrical and computer engineering,1-4 May 2005, pp. 645-648.
- M. R. Vallem,J. Mitra,"Sitting and sizing of distributed generation for optimal micro grid architecture",2005 proceedings of the 37th annual North America power symposium, 23-25 Oct. 2005, pp. 611-616.
- M. Pipattanasomporn, M. Willingham, S. Rahman, "Implications of on-site distributed generation for commercial/industrial facilities",IEEE Tran. On power systems, Feb 2005, vol 20, Issue 1, pp. 206-212.
- B. Kuri, M. Redfern , F. LI, " Optimization of rating and positioning of dispersed generation with minimum network disruption",2004 IEEE power engineering society general meeting, 6-10 June 2004, vol. 2,pp. 2074-2078.
- G. Celli, E. Chiani, S. Mocci, F. Pillo, "A multi objective formulation for the optimal sizing and sitting embedded generation in distribution networks", 2006 IEEE Bologna power tech conference proceedings, Bologna,23-26 June 2003, vol. 1
- Gopia Naik S. 1+, D. K Khatod2 and M. P. Sharma2, "Optimal Allocation Of Distributed Generation in Distribution System For Loss Reduction. "
- L. Ramesh, S. P Chowdhury, S. Chowdhury, A. A Nataranjan, C. T. Gaunt " Minimization Of power Loss in Distribution Networks By Different Techniques. "
- A. Kazemi, and M. Sadeghi, " A load flow based method for optimal location of Dispersed Generation Units".

Index Terms

Computer Science Networks

Keywords

Distributed Generation ETAP load flow algorithm loss reduction optimum location
voltage profile improvement