

POWER QUALITY AND VOLTAGE STABILITY OF DISTRIBUTION SYSTEM WITH DISTRIBUTED ENERGY RESOURCES

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ABSTRACT

Decentralized or distributed generation (DG) plays an increasing role in the liberalized electricity market. Furthermore, by making use of renewable resources, it may contribute to reduce greenhouse gases. DG can have a significant impact on the power flow, voltage profile, voltage stability and the power quality for both customers and electricity suppliers. Therefore, its introduction requires a suitable tool to analyze the influence of such technologies on the distribution system. In this paper, models of distribution systems with considerable DG penetration are discussed. Then, the power quality and voltage stability impacts of DG units on the distribution system are studied with several such technologies under different load conditions.