Abstract

The voltage instability phenomena occur in both transmission systems and distribution systems. The weakening of voltage stability level will limit the growth of load served by distribution companies. Voltage instability in power distribution systems could lead to voltage collapse and thus power blackouts. The integration of distributed generation (DG) in the distribution system has increased to high penetration levels. The ultimate goal of this paper is studying the impact of DG units under varied penetration level on some issues, such as voltage stability, voltage profile, power flow and PV curves for each bus. This paper analyzes and discusses the performance of static voltage stability of 15 buses a practical distribution system in the Kumamoto area in Japan by using Fast Voltage Stability Index FVSI and varying the load ability with varied DG penetrations. In this paper, two types of DG sources are used in distribution systems wind turbine and photovoltaic.


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Index Terms

Computer Science

Power Systems

Keywords