URN etd-0407109-183726-2185
Author Huang-Shih Cheng
Author's Email Address No Public.
Statistics This thesis had been viewed 59 times. Download 0 times.
Department
Year 2003
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Voltage and Harmonic Analysis for the Distribution System with Distributed Generation Systems
Date of Defense 0000-00-00
Page Count 99
Keyword
dispersed generation system
voltage analysis
harmonic analysis
voltage sags

Abstract
The purpose of this thesis is to investigate the impact of dispersed generation systems (DGS) on the voltage regulation, voltage sags and harmonic distortion for the distribution systems. The photovoltaic generation stations (PVGS) with various rating capacities are connected to a radial distribution feeder of 11.4kV level. To know the harmonic behavior of the PVGS, the harmonic voltage and current generated by the inverters of a three-phase PVGS with rating capacity 10kW are recorded per hour in a one-day measurement. The daily load pattern of the distribution feeder is applied to obtain the daily voltages at each bus with and without considering the on load tap changer (OLTC) transformer and the PVGS by executing the load flow analysis. The harmonic currents generated by the PVGS and other nonlinear loads are applied to calculate the harmonic distortion of the distribution feeder by executing the harmonic power flow analysis also. Furthermore, the filter design is also presented to improve the harmonic distortion of the distribution feeder. With considering various capacities of the gas turbine generators (GTG), voltage sags due to short circuit faults at different locations of other feeder are simulated by using the transient stability analysis. It is concluded that the PVGS can regulate the bus voltage very well without causing serious harmonic pollution if the accurately filters designed are installed. Also, the GTG can be used to reduce the voltage sags of the feeder by regulating its excitation system quickly.
Advisory Committee Hsu Cheng-Ting - advisor

Files No Any Full Text File.
Date of Submission 2004-01-19