URN etd-0407109-183726-2225
Author Yi-Jen Huang
Author's Email Address No Public.
Statistics This thesis had been viewed 40 times. Download 0 times.
Department
Year 2003
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Short-Circuit Analysis for Distribution Systems with Dispersed Generation Systems
Date of Defense 0000-00-00
Page Count 75

Keyword
Dispersed generation systems
Distribution system
Fault current
Voltage sag

Abstract
This thesis discusses the impact of dispersed generation systems (DGS) on the fault current, protective coordination and voltage sag of the distribution systems. One radial distribution feeder of TPC is selected for computer simulation. Applying the dispersed generation system with synchronous and induction generators at different locations of the feeder to find the discrepancy in the fault currents by executing the short circuit analysis. To meet the TPC requirement, the fault current will be constrained by reducing the installation capacity of dispersed generators or increasing the impedance of step-up transformers. Also, this thesis derives the residual voltage and the duration time of the feeder to examine the effectiveness of DGS to alleviate the voltage sag during the short circuit fault period. The influence of the DGS on the protective relays and the coordination is discussed in detail. It is found that the maximum fault current may be produced when the DGS with synchronous generators are installed at the outlet of the feeder. The maximum installation capacity of DGS and the minimum impedance of the step-up transformer can be derived easily and verified by the computer simulation. When the fault occurred at the outlet of the other feeder, it will result in the largest voltage drop with less fault duration time. For the feeders served by the same distribution transformer, the voltage sags can be improved slightly by installing the DGS. On the other hand, the DGS will not reduce the voltage sags of the other feeders supplied by different distribution transformers. It is concluded that the study can provide the good reference planning and operating strategies for distribution systems with DGS. The utilities can also improve the power quality and the reliability of the distribution systems by installation of DGS systems.
Advisory Committee Cheng-Ting Hsu - advisor

Files No Any Full Text File.
Date of Submission 2004-06-30