URN etd-0407109-183712-938
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Statistics This thesis had been viewed 35 times. Download 0 times.
Department
Year 2006
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Assessment and Improvement of Voltage Sags for the High-Tech Industry Customers with Cogeneration Systems
Date of Defense 0000-00-00
Page Count 103

Keyword
Cogeneration Systems
Voltage Sags

Abstract
The power quality has become a critical issue for the industrial customers in science park. The voltage sag and power system stability problems due to fault contingency in Taipower network have caused serious production loss. This thesis executes the improvement of the voltage sags for the High-Tech Industry customers by the installation of cogeneration systems. The critical equipment is evaluated against the SEMI F47 and ITIC power quality documents. The voltage sag can be reduced significantly by the installation of cogeneration system. Also, the under voltage relays to disconnect the cogeneration system from the utility are designed by considering the voltage sags ride-through curves and the critical clean time. The Dynamic responses of different fault conditions are executed by using the transient stability analysis to calculate and define the voltage sags ride-through curves with and without considering the tripping of the cogeneration system. Finally, the voltage sags stochastic assessment and the prediction of economic analysis are both executed to examine the effectiveness of the industry customers connected to the cogeneration system.
Advisory Committee Cheng-Ting Hsu - advisor

Files No Any Full Text File.
Date of Submission 2007-07-25