

中文摘要

台南科學園區為國內重要高科技及高產值園區，電力供應之品質直接影響園區之產能。由於地下電纜大量使用，本論文主要依南科超高壓變電所輸電系統及鄰近線路之架構，探討南科供電系統的無效功率對電壓變化之影響，同時分析輸電線線路上之參數與模型。藉由 Matlab 及 ASPEN-Oneliner 套裝軟體，對輸電線線路上之參數、電抗器與負載變化進行模擬，分析南科負載端無效功率對電壓變化及線路損失之影響。

英文摘要

Tainan Science-Based Industrial Park (NSIP) is an important Hi-Tech park of high-valued productions. The supplied power quality will influence profits of these manufacturers directly. Owing to the large amount of underground power cables used, this thesis introduces the transmission structure of NSIP, including the substation and nearby transmission lines. The line model and the voltage variation caused by the reactive power are investigated. The Matlab and ASPEN-Oneliner packages are used to simulate the influence of reactive power under different line parameters, reactor, load variation on voltage variation and line loss.