TERDSONGCHAI PUTTHISRI : OPTIMAL CONTROL OF REACTIVE POWER FOR POWER SYSTEM LOSS MINIMIZATION . THESIS ADVISOR : PROF.DR.CHARUAY - BOONYUBOL,Ph.D. 187 PP.

This thesis presents a method for a real power loss minimization by optimal reactive power system control . Optimization and - linear programming techniques are employed in finding solution to this problem . The problem constraints include limits on dependent variables, which are reactive power of generators , load bus voltages , and con - trol variables , i.e , generator voltages , tap positions and switchable reactive power device . The selection of location for a reactive power device is based on a set of indices determined from a steady state stability , load bus voltage control and power loss in the power system

In this thesis a computer program is developed on a 16 bit microcomputer using FORTRAN programming language . The IEEE 6-, 14-, and 30-bus standard test systems are studied and analyzed respectively . The result of the study indicates that the program can automatically adjust the control variables until power system loss is minimized . Besides , the study shows that increasing the capacity and number of reactive power devices can further reduce power system losses .