

EE3541, EXPERIMENT 2

ANALYZING THREE-PHASE POWER AND POWER FACTOR CORRECTION USING POWERWORLD®

1 Problem Statement

The primary objective of this lab assignment is to learn how to use PowerWorld® to solve problems related to three-phase power circuits. The textbook used is *Power System Analysis and Design, 6th Edition* by Glover, Sarma, and Overbye.

2 Problem Statement

Solve problems 2.32, 2.33, and 2.34 of the textbook, which address the use of shunt capacitors to minimize losses.

Solve problems 2.27 and 2.48 of the textbook, which address power factor improvement with capacitors. They also illustrate working with motor loads.

3 Questions

1. Describe your solution to the assigned problems. What issues did you encounter in using Simulator?
2. Show your results, including plots. Show any code that you wrote yourself.
3. Why are losses changed with capacitor placement? Why are they minimized with certain choices?
4. How did you verify your results for reasonableness and accuracy?