and 6.5, the total power loss in the system is reduced, efficiency of the system increases and percentage voltage drop decreases. This is due to the decrease in the current flowing through the transmission line which results in a decrease in power loss through transmission line. As such, more power can be delivered to the load and increasing efficiency of the power system.

6.8 In 6.6 it is observed that percentage voltage drop is smaller when transformers are used. This indicates that with lesser power loss, less energy will wasted and that the desired voltage used consumed by appliances, in this case, the load can be more easily obtained. As such, the desired voltage used by appliances can be obtained from a lower source voltage more easily using transformers. In addition, power distribution will be more efficient with a lower percentage voltage drop as power consumed by load is higher.

6.9 2 possible power losses in the system would be the leakage flux loss around the core for the transformers and also heat loss in the connecting wires. With leakage flux loss around the core, magnetic flux linkage is not 100% and results to energy loss as such voltage obtained in secondary coil will be decreased. We assume wires connecting the apparatus have zero resistance. As current flows through the connecting wires for a long period of time, the connecting wires heats up and energy is lost as heat. Another possible power loss could be from hysteresis loss and eddy current loss in the transformer.

1) Power loss = 4.552 - 0.03038
= 4.52162W

2) Power loss = 3.345 - 2.4219
= 0.9231 W

Discussion and Conclusion

Overall, the objectives were met as it is evident that with the use of transformers in power systems, the power loss in transmission lines will