Lab 3: Voltage Stability Accessment

ECE 433 – Power Systems Stability and Transients

# Pre-lab Questions

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| **Name** | **Student ID** | **CCID** | **Lab Section** |
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## Questions

1. What is voltage stability? How does voltage instability manifest in a power system?
2. What are the main objectives of stability analysis?
3. Give the definitions of PV curve and QV curve. Why there is a "nose point" in these curves?
4. List at least four compensating devices or methods that can be used to maintain or to increase system voltage stability. Explain the advantages and disadvantages of each.
5. Plot qualitative PV curves (in one chart) for the following cases:
   1. base case
   2. if a parallel line is added to an existing line
   3. if a shunt capacitor is added to the system
   4. if a series compensation is added to a line.
6. If a shunt capacitor is switched off in an industry plant, what could happen to the bus voltages? Use PV curve to explain your answer.
7. State the advantages and disadvantages of the QV curve method.
8. If the reactive power output from a generator reaches its limit, will the generator help voltage stability? Explain why.