
EE 491 WEEKLY REPORT 5

Date: 10/4/16-10/10/16

Group number: May1728

Project title: Impact of High Photo-Voltaic Penetration on Distribution Systems

Client &/Advisor: Alliant Energy/ Dr. Ajjarapu

Team Members/Role:, Nat Summitt/Team Leader, Sam Searls/Team Webmaster, Wyatt Lauer/Communications, Mark Szkodyn and Abdul Waasay Mirza/New Developments

(All the above information should be there in each weekly report. The format/color scheme etc need not be the same.)

- **Weekly Summary (Short summary about what you did this week)**
- Our task for last week was to plot the voltage profile of 5 different points on a load profile curve in OpenDss so that we can continue to increase our understanding of it. During our meeting this week with Dr. Ajjarapu, and the TA, the following items were discussed:
 1. We will be preparing a presentation for them for our next meeting comparing the 5 graphs that we made as our assignment next week
 2. We will need to do some research on voltage regulators as well as capacitor banks to better understand how they work, and present that to Dr. Ajjarapu two weeks from now.
 3. We began to talk about our scope this week after he received an email from Mani asking him to do so. We do not quite have a final plan, but we are on track to have one. It sounds like we will be working with IEEE test cases this semester and then transition into the project another group is working on after they graduate in the fall.
- **Past week accomplishments (please describe as what was done, by whom, when)**
 - Nat Summitt: Ran the OpenDss 34 bus system at minimum load with the different combinations of regulators and capacitor banks. Started to work with Timeseries plots in OpenDSS
 - Wyatt Lauer: Ran the OpenDss 34 bus system at the second lowest load with the different combinations of regulators and capacitor banks. Reorganized our CyBox folder.

- Sam Searls: Ran the OpenDss 34 bus system at the 3rd load with the different combinations of regulators and capacitor banks.
- Mark Szkodyn: Ran the OpenDss 34 bus system at the 5th load with the different combinations of regulators and capacitor banks.
- Abdul Wassay Mirza: Ran the OpenDss 34 bus system at maximum load with the different combinations of regulators and capacitor banks. Worked on combining our graphs into a presentation for Dr. Ajarapu.

○ **Pending issues (if applicable)**

- None at this time

○ **Individual contributions**

| <u>NAME</u> | <u>Individual Contributions</u> | <u>Hours this week</u> | <u>HOURS cumulative</u> |
|-----------------------|--|------------------------|-------------------------|
| Nat Summitt | Minimum load OpenDss Plots. Began Timeseries plots | 5 | 18 |
| Wyatt Lauer | 2 nd load OpenDss Plots. Organized CyBox | 4 | 14 |
| Sam Searls | 3 rd load OpenDss Plots. | 3 | 13 |
| Mark Szkodyn | 5 th load OpenDss Plots. | 3 | 13 |
| Abdul Waasay Mirza | Maximum load OpenDss Plots. Made Presentation | 4 | 14 |

○ **Comments and extended discussion**

○ **Plan for coming week (please describe as what, who, when)**

- Nat Summitt: Meeting, and presenting to Dr. Ajarapu our plots from the 34 bus system on Wednesday. Researching voltage regulators, and capacitor banks. Compare simulation results with the group. Plot the load profile and timeseries of the 34 bus system. Complete the first draft of the project plan.

- Wyatt Lauer: Meeting, and presenting to Dr. Ajarapu our plots from the 34 bus system on Wednesday. Researching voltage regulators, and capacitor banks. Compare simulation results with the group. Plot the load profile and timeseries of the 34 bus system. Complete the first draft of the project plan.
 - Sam Searls: Meeting, and presenting to Dr. Ajarapu our plots from the 34 bus system on Wednesday. Researching voltage regulators, and capacitor banks. Compare simulation results with the group. Plot the load profile and timeseries of the 34 bus system. Complete the first draft of the project plan.
 - Mark Szkodyn: Meeting, and presenting to Dr. Ajarapu our plots from the 34 bus system on Wednesday. Researching voltage regulators, and capacitor banks. Compare simulation results with the group. Plot the load profile and timeseries of the 34 bus system. Complete the first draft of the project plan.
 - Abdul Wassay Mirza: Meeting, and presenting to Dr. Ajarapu our plots from the 34 bus system on Wednesday. Researching voltage regulators, and capacitor banks. Compare simulation results with the group. Plot the load profile and timeseries of the 34 bus system. Complete the first draft of the project plan.
- **Summary of weekly advisor meeting (if applicable/optional)**
We discussed the use of regulators and capacitor banks, and how they are used to affect the system. We then worked through our plan for the semester and what else we can expect to be doing until winter break.