
EE/CprE/SE 491 WEEKLY REPORT 1

9/23/2019-10/6/2019

Group number: 57

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

Client &/Advisor: Dr. Venkataramana Ajjarapu

Team Members/Role: Daniel Riley – Team Leader

Andrew Chaney – Project Engineer

Kenneth Prell – Assistant Project Engineer/Editor

Thomas Coleman – Assistant Project Engineer/Document Architect

Weekly Summary

In this session, we have made progress on the following tasks: Begin the NDA form completion to allow the handling of sensitive information on behalf of Alliant Energy, reviewed the example given in the Distribution System Modeling and Analysis textbook concerning a 4-node iterative power solution, and have looked up relevant developments and news within the power distribution sector.

Past week accomplishments

- Nondisclosure Agreement – Daniel
 - Included signatures from all group members, advisor, and faculty instructor in preparation for submission to Alliant Energy and Mr. Cox for approval.
- Textbook Example – All Team Members
 - Under direction of our advisor, we worked together to understand a simple example of what our project involves to get our feet wet with the material. We stepped through as much as we could as a group and brought our questions involving the example to Dr. Ajjarapu so he could complete our understanding.
- MATLAB Implementation – Andrew
 - After solving the first iteration by hand, Andrew created a program in MATLAB to automate the iterative process. This will ensure we have a solid foundation when moving our project work to OpenDSS.
- Current and Future Developments – All Team Members
 - Cursory reading has been completed relating to power distribution current events and future developments.

Pending issues

- NDA Submission – All Team Members
 - There is confusion between the program coordinator for NDA submission as to whether our team needs to submit one since Alliant Energy was not explicitly listed as a sponsor for our project.
- Access to OpenDSS – All Team Members
 - We have not received access to the software we will be using throughout our project. This is planned to be solved during the next meeting with our advisor.

Individual contributions

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours this Session</u>	<u>Hours cumulative</u>
Daniel	NDA Progress, Textbook Research, Current Events	9	9
Andrew	Textbook Research, MATLAB Coding, Current Events	11	11
Kenneth	Textbook Research, Current Events, Task Organization	9	9
Thomas	Textbook Research, Current Events, Document Creation	9	9

Plans for the upcoming week

- Access to OpenDSS – All Team Members
 - After the next meeting with Dr. Ajarapu, we will receive access to OpenDSS and begin familiarizing ourselves with it.
- Submission of NDA to Class Coordinator – Daniel
 - Once the confusion has been cleared on the requirement of an NDA for our project, we will either disregard or finalize our document for submission.

Summary of weekly advisor meeting

- Follow up on NDA form with Dr. Tyagi
- Move meeting time to 3:00 on Mondays for accomodation
- Acquire textbook copy from ISU library
- For problem:
 - Assume voltage value at the load node
 - Source is 1 per unit
 - Use impedance and voltage to find current
 - More complex for three-phase analysis
 - Ignore regulators for first solving
 - Treat the problem as a circuit

- Once solved -> three-phase analysis -> add regulator
- Begin OpenDSS by end of October
- Choose a team leader through the end of October
 - Team leader assigns tasks
 - Each member has an equal workload
- Inquire about committee presentation
- Hold a presentation of project progress at the end of each month
- Research new technology within the power distribution field