
EE 491 Weekly Report 7

3/6/18 – 3/27/18

Group 11

High-Level Design of a Distribution Microgrid

Client: Alliant Energy

Advisor: James McCalley

Nick Stitzell – Communications Engineer

Minoru Fernando – Research Engineer

Joe Thurin – Power Engineer

Taylor Murphy – Power Engineer

Remo Panella – Data Engineer

Project Objective:

Create an excel document that estimates the cost of incorporating distributive generation and storage into a microgrid system at Nichols, IA.

Weekly Summary:

This week we finalized the second version of our microgrid design prototype. This version operates on an hourly basis rather than a daily basis, and more accurately simulates weather conditions and corresponding generation, storage, and supplemental generation needed to provide enough power for the load.

Past Week Accomplishments:

Last week we continued improving the second version of the microgrid design prototype and received more information from Alliant regarding load profiles and hourly demand charts.

Pending Issues:

Going into this week, we were concerned about a potential lack of technical challenges for the design. We met on Tuesday with Professor McCalley at our normal time, without Alliant, and discussed

questions regarding the microgrid design as well as possible technical challenges and solutions for them. We left the meeting much more confident that there are problems with the design which we will be capable of solving and which will be presentable to the panel at the end of this semester.

Individual Contributions:

Team Member	Contribution	Weekly Hours	Total Hours
Nick Stitzell	Updated the website to be current. Began plans for second semester and for more technical challenges. Assisted with simulation bug fixing	4	29.5
Minoru Fernando	Researched all possible situations for simulation and built those scenarios into the prototype	4	23
Joe Thurin	Continued design of V2 prototype, incorporated estimated load curves from alliant into hourly demand calculations	7	34
Taylor Murphy	Tested prototype to find bugs in the simulation and equation to assure accuracy of microgrid design	6	25
Remo Panella	Finished mathematical models for simulation, began Matlab simulation prototype	5	24.5

Plans for the Coming Week (3/20/18 – 3/27/18):

- Nick
 - Update website
 - Create next weekly status report
 - Create presentation for Lightning Talk 3
 - Assist with creating Project Plan 2
 - Begin planning gantt chart for semester 2
- Remo
 - Begin designing a MATLAB version of the simulation to test for all possible weather conditions and generation/load outcomes

- Joe
 - Assist with MATLAB simulation
 - Begin extrapolating the Nichols design to all types of microgrids
- Taylor
 - Assist with MATLAB simulation
 - Begin extrapolating the Nichols design to all types of microgrids
- Minoru
 - Assist with creating Project Plan 2
 - Research longitude and latitude effects on solar generation, and other such geographical effects
- Alliant Energy

Summary of Client Meeting (3/20/18):

This week we did not meet with the client. We did however meet with Professor McCalley to discuss plans for solving technical problems in our design. We also brainstormed more ways to include technical solutions into this project.