
EE 491 Weekly Report 6

2/27/18 – 3/6/18

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 continued developing our prototype. Last week Alliant Energy asked us to change our simulation from daily demand estimates. We received general information from them regarding how the demand would look for an hourly prediction as well as hourly solar radiation.

Past Week Accomplishments:

Last week we finalized the first version of the prototype and pitched it to Alliant. Alliant was pleased with how the prototype functions and gave us a few things to change: daily constraints to hourly constraints, better organization, and clearer simulation.

Pending Issues:

The hourly estimates are very vague. We're assuming all worst-cased scenarios, but it's still hard to predict solar radiation.

Individual Contributions:

Team Member	Contribution	Weekly Hours	Total Hours
Nick Stitzell	Updated Project website, assisted with organization of spreadsheet	4	25.5
Minoru Fernando	Researched ways to average Midwest Iowa solar radiation values for spreadsheet, incorporating randomness into the prototype for weather patterns, possibility of having multiple tabs for the different levels of solar radiation.	6	19
Joe Thurin	Finished prototype V1 for simulation of days, started V2 simulation for hours, researched load data for variable demand and generation scenarios	7	24
Taylor Murphy	Constructed hourly/daily simulation, assisted with research of microturbine generation	5	19
Remo Panella	Continued mathematical model for simulation, researched how microturbine will be utilized for supplemental generation.	6	19.5

Plans for the Coming Week (3/6/18 – 3/20/18):

- Nick
 - Update website
 - Assist with prototype
- Remo
 - Research a Matlab version of simulation

- Joe
 - Wrap up V2 prototype to pitch to Alliant
- Taylor
 - Wrap up V2 prototype to pitch to Alliant
- Minoru
 - Test prototype to find issues with calculations or simulation
- Alliant Energy

Summary of Client Meeting (3/6/18):

No meeting this week.