

EE 491 Weekly Report 2

Start Date: February 7

End Date: February 13

Group number: 18

Project title: Utility Scale Lithium-Ion Energy Storage Project

Client &/Advisor: Burns and McDonnell, Zhengdao Wang

Team Members/Role:

- ❖ Oksana: Leader; responsible for keeping the team on track
- ❖ Sarah: Organizer; responsible for revising, editing, and helping keep track of all our reports.
- ❖ James: Document Report; responsible for the submission of our reports.
- ❖ Cole: Point of Contact/Communicator; responsible for meeting and contacting the clients and faculty advisor.

Weekly Summary:

We have determined a location in South Ames for our Battery Energy Storage System(BESS). We will also need to verify the substation location. Additionally, we need to get familiar with Auto CAD and go over the documentation sent to us by Burns and Mac. We are leaning towards using the BYD battery for our project. We also received the KMZ file for our project location. We will be creating a spreadsheet comparing the various batteries and inverters for our project in the next week.

Past Week Accomplishment:

We had our first meeting with our faculty advisor and signed the NDA from the client.

As a group:

- Got Autocad
- Clarified the project parameters with Burns and McDonnell
- Familiarized ourselves with specifications sheets
- Determined site location

Individually

- James: Organized and summarized technical documents. I revised and finalized the weekly report. This week, I installed AutoCAD and read through the specifications sheet. I also completed an online tutorial using AutoCAD.
- Oksana: I worked on emails to the faculty advisor, worked on the week 2 report, and installed AutoCAD to start working with it for our project. I also reviewed documents sent

from the client for battery spec sheets and training and uploaded and edited our client meeting notes into Microsoft Teams.

- Cole: Continued working on adding members and organizing the Microsoft teams.
- Sarah: I researched lithium-ion battery technology and reviewed the provided spec sheets. I installed AutoCAD and messed around to familiarize myself with the software.

Pending Issues:

We will need to determine the types of batteries and PCSs we will use for our BESS. We must also use Autocad and Google Earth to create a top-down view of the storage system.

Individual Contributions:

Name	Individual Contribution	Hours this reporting period	Previous Hours	Cumulative Hours
Oksana Grudanov	Sent emails to our faculty advisor to update him about our project parameters and ask for additional help. I helped with installing the necessary software to work on the project.	3.0 (Weekly Meetings) 1.0 (Battery spec docs) 0.5 (emails) 0.5 (Revise meeting notes for client) 0.5 (Weekly report)	4.5	10.0
Sarah Ebert	Reviewed technical specifications for battery and PCS skids and made a spreadsheet to compare them	3.0 (Weekly Meetings) 2.0 (Spec Sheet comp) 0.5 (Weekly report)	5	10.5
Cole Dustin	Downloaded and used Autocad and reviewed technical documentation	3.0 (Weekly Meetings) 1.0 (Battery and PCS docs) 0.5 (Autocad) 0.5 (Weekly report)	5	10.0
James Mendenhall	Familiarized myself with AutoCad and reviewed the spec sheets for the project. Submit weekly report and upload them into teams for the client to see.	3.0 (Weekly Meetings) 1.0 (AutoCAD tutorials) 0.5 (Spec Sheets) 0.5 (Weekly Report)	5	10.0

Plans for the upcoming week:

Decide which battery and inverter to use for the project.

Individual Assignments for the upcoming week:

Oksana: I will review the battery spec sheet to help determine specifications for the battery and the inverter & calculations to find the apparent power, real, and reactive power given the parameters from our client. I will also update the meeting notes for our client meeting and add it to Microsoft Teams.

Sarah: I will review the spec sheets more thoroughly and compare the parameters on a spreadsheet. We will use this spreadsheet to decide which technologies we will use (as a group), and it will assist in our calculations.

Cole: Review the battery spec sheets & work with AutoCAD.

James: Review the battery spec sheets & help decide on the inverter using the spreadsheet. Also, add the weekly reports to the Microsoft teams for the client to review.

Summary of weekly advisor meeting:

We did not meet with our advisor this week as he has been traveling. We will set up a meeting in the coming week to discuss the new information we have received from the client and get some general advice on how to proceed with the specs for this project.

Summary of weekly client meeting:

Burns and McDonnell determined the location for our project. It is south of campus near an existing substation. We will operate assuming the area will be a flat—20-acre site. We will use this as the background for our drawings. We need to send Burns and McDonnell a summary of meeting notes. 25MW, 4-hour system 100 MWh are the main parameters for the project. No preference for system, inverter, or batteries used. The BESS needs a power factor output of .95, which we will use in our sizing. Our client will give us real and reactive power losses. We will need to calculate the reactive power and determine the apparent power that will give us the necessary power for our project.