

EE 492 Bi-Weekly Report 3

Start Date: September 20, 2024

End Date: October 3, 2024

Group number: 18

Project title: Utility Scale Lithium-Ion Energy Storage Project

Client: Burns and McDonnell

Faculty Advisor: Zhaoyu Wang

Team Members/Role:

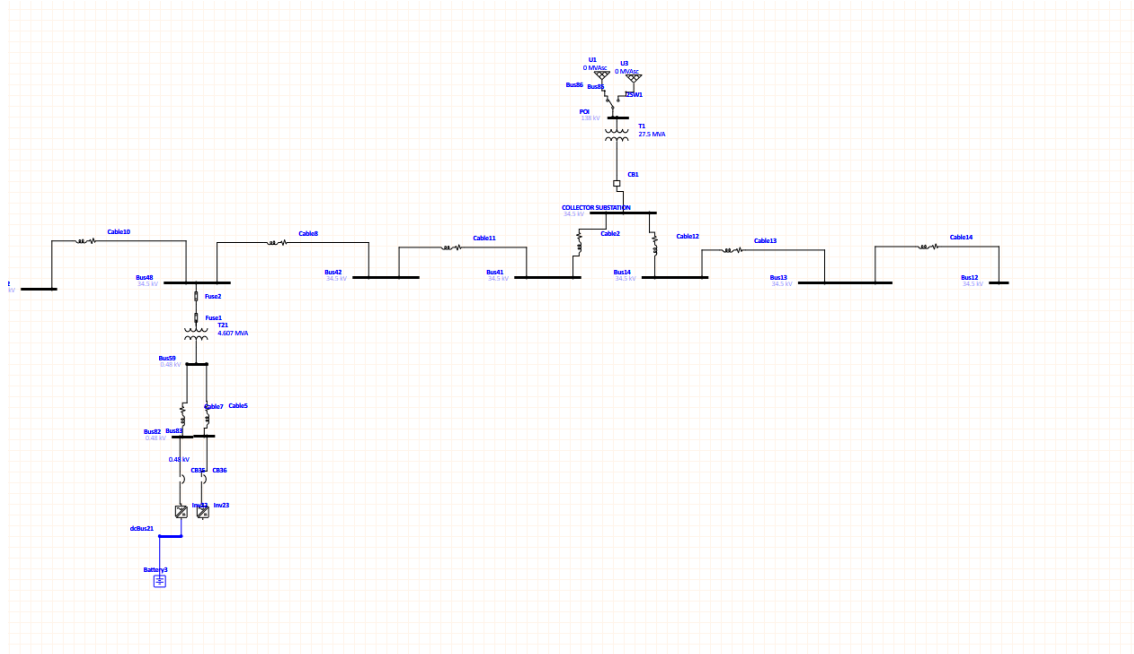
- ❖ Oksana: Leader—responsible for keeping the team on track; cable sizing and schedule report.
- ❖ Sarah: Organizer—responsible for revising, editing, and helping keep track of all our reports; one-line diagram design and one-line diagram report
- ❖ James: Document Report—responsible for the submission of our reports; Inverter quantity; one-line diagram design and one-line diagram report
- ❖ Cole: Point of Contact/Communicator—responsible for meeting and contacting the clients and faculty advisor; AutoCAD site layout design and site layout/ technology justification report.

Bi-Weekly Summary:

During this period, we finally got access to the necessary software to model our system. We were able to build a rough draft of our BESS on ETAP. We were also able to input most of our system's characteristics into the software. We do not have the full system implemented yet due to limits on the number of buses allowed for the available license. We then consulted with our client on the draft. As of right now, we have most components in place. We will have to revisit several aspects due to ETAP crashing repeatedly. We also need to obtain a signature from our faculty advisor to add the additional buses for our project.

Accomplishments from last period

As a group:



Name	Individual Contribution	Hours this reporting period break down	Period hours	Total Hours
Oksana Grudanov	- watch videos on ETAP software to become familiar with the software and creating an account to access it.	1.0 (software familiarity) 2.5 (Team Meetings)	3.5	83.0
Sarah Ebert	- Set up ETAP model in senior design lab computers - Reviewed/edited model built by group members	3.0 (ETAP) learning and modeling) 3.0 (Team Meeting)	6.0	85.0
Cole Dustin	- Called ETAP/ETG for licensing information - Created One-Line in ETAP	3.0 (Team Meetings) 3.5 (ETAP One-Line) 2.0 (Emails/ Calls for licensing)	8.5	84.5
James Mendenhall V	- Setup ETAP software - Aided in One-line ETAP design	3.0 (Team Meetings) 2 (ETAP One-line) 1 (Emails for Client/ Advisor)	6	87.5

Plans for the upcoming period:

We plan to finish the ETAP model and have our clients approve it in our next meeting. Hopefully, we will have the software capability to model our aux power system, but otherwise model a simplified version. We will also get in contact with the local utility for more information on grid interconnection values. Then we can begin the simulations next week.

Individual Assignments for the upcoming period:

James: Reach out to the faculty advisor again. Obtain the necessary signatures to complete the ETAP model. Learn different features in ETAP within the new library our client gave us access to.

Oksana: Get familiar with ETAP and work matching the A/C cables in ETAP with the ones I made for the cable schedule.

Cole: Continue to improve on the ETAP diagram and make it as close to our actual system as possible.

Sarah: Help group members finish modeling the system in ETAP, focusing on the equipment parameters. I will also contact someone at the local utility to get more information about the grid tie-in values.

Summary of advisor meeting:

We have been trying to contact our advisor for a signature to approve the necessary add-ons to the ETAP license.

Summary of client meetings:

In our meeting last week, we decided to use ETAP to model and test our BESS. This week, we showed our clients the rough draft we created as a group. They said we were off to a good start, and we should try to finish it by next week. We added a grid interconnection block, and bus above the point of interconnection. We also worked on the parameters for our home-run cables to match our cable schedule. Finally, we added some fuses and breakers to our PCS block. We also obtained the library necessary for the components we selected from our client. We also learned we need to contact a utility company to learn more about the parameters where the system connects to the grid.