

EE 492 Status Report 4

02/27/2025 to 03/13/2025

Team 41

115/34.5kV Solar Plant & Substation

Client: Black & Veatch

Faculty Advisor: Ajjarapu Venkataramana

Team Members:

Andrew Chizek -- Team Leader

David Ntako -- Lead/Start BV Meeting

Ben Palkovic -- - Meeting Recorder

Mohamed Sam -- Submissions

Sergio Sanchez Gomez -- Communications

Dallas Wittenburg -- Communications

Weekly Summary:

This week, we made solid progress on several key parts of the project. We had a detailed discussion with BV about the one-line diagram and got feedback on what needs to be updated. We also put together a rough draft of the physical layout and worked on AC and DC calculations, including figuring out battery sizing. One issue we ran into was the IEEE 485 website tool (Energysys) not working, so we're looking for alternative solutions. Overall, we're making good strides in refining our designs and calculations while keeping everything on track.

Past Week Accomplishments

Talked in more detail with BV about the one-line and received comments on the drawing.

Made a rough draft of the physical layout.

Made AC and DC calculations and are figuring out battery sizing.

Pending Issues

IEEE 485 website tool (Energysys) is not working so we are working to figure this out.

Individual Contributions

Name	Contribution	Hours this Week	Total Hours
Andrew	Started implementing the comments on the physical layout on AutoCAD. Also started to look into what a grounding plan is and the design process. Also helped with DC calculations.	7	21
David	Worked on DC calculations spreadsheet with Sergio. Researched IEEE 485 standards for battery sizing and initiated the development of an Excel tool to streamline battery sizing reports. Also, still doing some research to find a website that could help us do DC calculation as an alternative.	7	22
Ben	Added details to one-line (PTs, relays), verified connections, updated drawing according to BV comments.	10	25

	Made a rough draft of a physical layout and found IEEE documents for grounding analysis.		
Mohamed	Worked with Dallas on ETAP drawings and power flow analysis. Additionally, began working on a three-line drawing using AutoCAD.	8	23
Sergio	Worked on DC calculations spreadsheet. Researched IEEE 485 standards for battery sizing and initiated the development of an Excel tool to streamline battery sizing reports	7	22
Dallas	Worked on AC calculation spreadsheet provided by our client, researched IEEE485 for battery sizing and looked into grounding plan	8	24

Plans for Coming Week

- Finalize and refine our task for the upcoming presentation.
- Review our progress and ensure all documentation is complete.
- Meet with our advisor once he is available to receive feedback.
- Attend our scheduled client meeting to discuss any updates or new tasks.
- Collaborate as a team to stay on track with project goals and deadlines.
- Address any missing details or improvements needed before the presentation.
- Finish implementing comments
- Make an excel sheet for IEEE 485 if the online source doesn't work

Action Items for Client

- 3 – Line
- Finalize relaying
- Section Views
- Finish implementing comments
- IEEE 485 Calculations
- Grounding Analysis