

EE/CprE/SE 492 BI-WEEKLY REPORT 1

1/28/24 – 2/10/24

Group number: sdmay24-18

Project title: 115/34.5 kV Solar Substation & Design

Client/Advisor: Black&Veatch/Dr. Ajarapu

Team Members/Role:

Eli Schaffer / Team Leader

Baylor Clark / Team Organizer and Design Engineer

Liam Gossman / Client Correspondent

Eduardo Jimenez-Tzompaxtle / Submission, Research and Testing Leader

Chicheng Tang / Research and Testing Leader

Siti Mohd Ratzi (Bell) / Recorder and Testing

○ **Weekly Summary**

The group divided work amongst ourselves to move forward with a number of different tasks in the design process. Research was done to find cut sheets and pricing for substation components. Research will continue for the next couple of weeks. Design of one-line and substation design was also started during this time. Researching types of switchgear and relaying configurations. The group changed the wiring configuration from inverters to the substation.

○ **Past week accomplishments**

- Eli: Lead both internal meeting and client meeting, worked on updating the AutoCAD cover sheet and started the one-line design process and ACAD sheet
- Baylor: Adapted the site wiring to correspond with the new feeder and layout design for the substation.
- Liam: Researched required substation components. Found components from online sources to use as references.
- Eduardo: Researched bus bar connections, and switchgears to decide on what to connect.
- Bell: Research on the feeder line connection, and the components connected along the line.
- Chicheng: Viewed and reviewed the work of previous groups, analyzed and summarized their design and compared them to our group's current design work.

○ **Pending issues**

- Eli: Bus layout selection, the sooner we pick a design the faster we can start with the full layout
- Baylor: Changing the overall site wiring plan to match the new key-plan layout
- Liam: Find remaining equipment if able, as not all equipment references were applicable for our project
- Eduardo: ring bus bar justification and design
- Bell: More research on the feeder connection to decide on the bus connection, also working on collecting necessary data, parameters and formula for future calculation.
- Chicheng: Compare the advantages and disadvantages of each design.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS Cumulative This Semester</u>
Eli	AutoCAD design, presentation work	6	22
Baylor	AutoCAD design and wiring layout	4	20
Liam	Find online references for components	6	24
Eduardo	Research of components	4	18
Bell	Research on the feeder connection	5	20
Chicheng	Research on the different protection type	5	20

○ **Plans for the upcoming week**

- Eli: One-line design/bus layout type, continue updating cover sheet and other CAD drawings
- Baylor: Preliminary calculation research and also further AutoCAD design.
- Liam: Research SEL relaying and relay requirements for the project
- Eduardo: Research more ring bus bar details to justify the design choice and an AutoCAD layout on a ring busbar.
- Bell: Looking into calculations for a substation
- Chicheng: Research on protection and grounding.

○ **Summary of weekly advisor meeting** (maybe)

- No meeting with faculty advisor. First meeting is 2/13. More information to follow.