

EE 492 Weekly Report 2

01/30/2025 to 02/13/2025

Team 41

115/34.5kV Solar Plant & Substation

Client: Black & Veatch

Faculty Advisor: Ajjarapu Venkataramana

Team Members:

Andrew Chizek -- Submissions

David Ntako -- Lead/Start BV Meeting

Ben Palkovic -- Meeting Recorder

Mohamed Sam -- Team Leader

Sergio Sanchez Gomez -- Communications

Dallas Wittenburg -- Communications

Weekly Summary:

During the third week, we met with our client, Black & Veatch. We discussed various components that can be found in a substation including transformers, disconnect switches, circuit breakers, CCVTs, and bus bars. We found examples of datasheets for each of these components and presented to our client about them to gather thoughts on which ones would be best for our project. We also sent our updated gantt chart as requested by our client and waiting to hear feedback from them. We also communicated with our advisor to provide updates and receive feedback about the project. During the fourth week, we met up as a team to discuss the datasheets for each of the components we've been researching. We also created a one-line diagram for our substation and discussing with our client about what bus configuration will be best for factors including redundancy, cost, and safety.

Past Week Accomplishments

- Discussed Single Breaker Double Bus Configuration

- Move backup transformer to backup bus
- Consider adding more breakers (Double breaker double bus)
- Discussed Sectionalized Bus Configuration
 - Some unnecessary breakers that should be removed (Line exit breakers)
- Bus Discussion
 - Could be good to use two 60 MW transformers
 - Discuss as a team which configuration would be best (Best level of redundancy, protection, and complexity)
 - Leaning towards ring or double bus single breaker

Pending Issues

No issues

Individual Contributions

Name	Contribution	Hours this Week	Total Hours
Andrew	Helped look into bus materials, helped with our configuration selection	5	7
David	Conduct research on component selection and helped to find the data sheets for circuit breakers and transformer	5	7
Ben	Research bus configurations, make initial drawings, make refined drawings on AutoCAD, make revisions following meeting with BV	5	7
Mohamed	Conduct research on component selection and helped to find the data sheets for circuit breakers and transformer	5	7
Sergio	Research bus configurations, and create AutoCAD drawing for one of the bus configurations	5	7
Dallas	Updated Gantt Chart for our client and compiled datasheets to send to our client about component selections.	6	8

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.
- Discuss and finalize bus configuration
- Create AutoCAD drawing for selected bus configuration

Action Items for Client

- Finalize One-Line diagram and send to our client
- Look into relaying and relays we need
 - SEL Protective Relaying
- Add ratings to One-Line
- Select rigid bus material
- Begin using ETAP to test out ratings and configurations