

## BI-WEEKLY REPORT 1

JANUARY 25, 2021 – FEBRUARY 7, 2021

SDMAY21-37

115/34.5KV SOLAR POWER PLANT & SUBSTATION DESIGN

CLIENT: BLACK & VEATCH

FACULTY ADVISOR: DR. VENAKATARAMANA AJJARAPU

GROUP MEMBERS:

**CHRISTOF BARRIER**

**LOGAN HINKLE**

**KEVE HUGHES**

**BRIAN LEMKE**

**CORTLAND POLFLIET**

**NOLAN ROGERS**

**ERIC SCHULTZ**

### SUMMARY

We will begin working on the trench fill analysis next week, possibly doing more research before attempting to design. The trench fill analysis will be about the underground wiring of the solar plant. The voltage-drop calculations we previously did will play into this as well. They will email us a set of instructions tomorrow pertaining to our next steps in the project. Other assigned tasks during this period include research about substation bus layouts and preliminary drawings of the substation one-line diagram.

### ACCOMPLISHMENTS

- Trench Fill Tool – Nolan, Brian, Logan, Keve, Christof, and Cortland
  - Discussed ways to approach the design of this tool
  - Found documentation on typical substation cable trench from IEEE 525
- Substation Bus Layout Research
  - Researched different bus configurations to see what would work best for our substation.
- One-Line Diagram – Eric, Christof, Brian, and Cortland
  - Received standard one-line components for Bluebeam
  - Gained familiarity with Bluebeam and how document sharing works

Group Member	Bi-Weekly Hours	Cumulative Hours
Christof	12	12

Logan	12	12
Keve	12	12
Brian	12	12
Cortland	12	12
Nolan	14	14
Eric	14	14

#### PENDING ISSUES

- IP agreements -
  - Waiting on faculty to sign and approve
- Bluebeam -
  - Make sure everyone can access and use Bluebeam
- Trench Fill Tool –
  - Understand the purpose of the cable trench tool
  - Awaiting cut sheets for typical wire sizes from Black & Veatch to start populating the tool
- One-Line Diagram –
  - No pending issues, the diagram just needs to be worked on

#### PLANS FOR UPCOMING WEEKS

- Trench Fill Tool –
  - Continue to work on tool once we receive required information from mentors.
- One-Line Diagram –
  - Figure out how to use blue beam to create our one-line diagram.

#### SUMMARY OF MEETINGS

The last two meetings with our mentors we have discussed about substation bus layout design and purpose.