

**sdmay23-27: 115kV/34.5kV Solar Power Plant & Substation Design Project**

Week 3 Report

October 7 - October 14

**Team Members**Madison Lakomek — *Researcher*Brooke Nelson — *Meeting Minute Taker*Ashton Randolph — *Leader*Jacob Miller — *Researcher*Jenna Runge — *Researcher*Omer Karar — *Researcher*Madissen Lawrence — *Researcher*Zachary Zimmerman — *Researcher***Summary of Progress this Report**

During this period, we completed a solar cost analysis, dc voltage drop calculations, and began working on the AutoCAD drawings of the physical solar field. With the cost analysis, we researched the estimated prices of the panels, inverters, and combiner boxes as well as how axis tracking affects those prices and calculated the overall cost for our design. The DC voltage drop calculation was worked through as we continued to figure out the distance between specific species within the solar field. We presented a powerpoint over photovoltaic basics to Ajarapu on Tuesday, met with Black & Veatch on Wednesday, and met as a group for work time on Thursday. We also completed the project plan document.

**Pending Issues**

We need to finish our voltage drop calculations by finalizing distances for jumpers and jumper wire size. We are unsure if our solar field layout is exact and symmetrical because it currently does not use the DC voltage. We are waiting to hear back from Black & Veatch to see if we need to alter our last array in our layout.

**Plans for Upcoming Reporting Period**

We plan to finalize our CAD drawings based on our finished voltage drop calculations. We need to create a circuit diagram to show the parallel and series connection within the solar field. We also need to research the significance of  $R_p$  and  $R_s$  on the voltage/current graph for photovoltaic panels.

**Individual Contributions**

Team Member	Contribution	Weekly Hours	Total Hours
Madison Lakomek	researched costs of panels, converters, and interverters and used the information to complete the solar panel cost analysis. Attended all meetings and worked on the project plan document.	5	0
Brooke Nelson	Explored AutoCAD and attended all the meetings.	4	0

Ashton Randolph	explored AutoCAD and attended all the meetings	5	0
Jacob Miller	attended B&V meetings and team meeting	4	0
Jenna Runge	I worked on the voltage drop calculations, worked on project documents, and attended all meetings	5	0
Omer Karar	I work alongside the group member on voltage drop calculations; I am also working on a project plan.	5	0
Madissen Lawrence	I worked on the voltage drop calculations, updated the project web page, worked on documentation, attended and participated in all meetings.	5	0
Zachary Zimmerman	Worked with the team on voltage drop calculations, created CAD drawings (template/title block, solar array layout (plant overview, detailed array overview, component page, electrical layout page #1 & 2). Worked on team documents for class.	20	

**Gitlab Activity Summary**Nothing to report.

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