

# **May1727**

**Project Title: Stand-alone Hybrid Solar/Wind  
Power Plant**

**Advisors: Dr. Venkataramana Ajjarapu & Ankit  
Singhal**

## **Team Member – Roles**

Nathaniel Byrne - Group Leader

Brian Gronseth - Solar Tech. lead

Jeffrey Szostak - Wind Tech. Lead

Matthew Lee - Communications Lead

Mike Trischan - Key Concept Holder

Eric Cole - WebMaster

Executive Summary:

Were told to verify the conservation of energy in our simulations. This proved more difficult than we initially thought and required additional help for the TA's. In order to make sure things are exactly correct we will need to repeat these steps.

Past Week Accomplishments:

The team as a whole made an excellent presentation presented for Amauricai.
Worked on lab documents, parameterizing generator. Getting closer to completing these objectives
Verified that wind simulation works properly and we are getting the output power expected from our input. Started work on adding the batteries to the system.
Solar team verified conservation of energy in the pv array simulation and wrote lab manuals for ee 452.
The senior design group verified that our simulation works properly and began adding the batteries to the systems. We also continued writing the lab manuals.
Working on the solar simulation. We took the software apart and tested each portion to verify the conservation of energy. This data was compiled into tables and put in the presentation for our Professor.

Individual Contributions:

Name	Hours this week	Cumulative	Contribution
Nathaniel Byrne	3	61.5	I helped with building the presentation on Sunday(1hr), Thursday(1hr) by helping Matt make some video clips and other things.* And on Friday(1hr) I helped with getting final touches on the presentation, along with practicing with the team and the presentation to Amauricai.
Brian Gronseth	3	67	Simulated the pv array under different loads and took power measurements from each output to verify conservation of energy.
Jeffrey Szostak	4	84.4	I calculated the wind turbine's number of pole pairs and the magnetic flux of the wind turbine.
Matthew Lee	4	92.3	I took all the solar simulation measurements for the verification process.
Mike Trischan	4	81	Created lab document on wind hardware. Measured pole pairs and magnetic flux of wind generator
Eric Cole	4	74	Verified that wind simulation works properly and we are getting the output power expected from our input. Started work on adding the batteries to the system.

Summary of Weekly Advisor Meeting:

NA
NA
NA
Na
We had a productive meeting with Dr. Ajjarapu friday at 1pm where we discussed what we should do next with our project.
Discussed errors in results and how to fix them.

Plan for Next Week:

I think we will continue with developing lab modules and wind team will get to where they want to be in terms of their end of constructing the lab hardware.
Continue to work on lab docs and wind hw
Work on the battery simulation and get the system to power the load and store energy in the batteries.
After spring break we will try and put the national instruments sensor array together.
Focus more on the simulink files and combine the two together.
Meet with Ankit to try again to verify the simulation results.

Pending Issues:

NA
NA
NA
Na
None.
Simulation is giving inaccurate results all of a sudden, for no good reason.

Comments/Extended Discussion:

Wind team is still struggling, maybe we can help them somewhere.
Matt
none
Na
None.
NA