
EE 491 Week 9 Report - sddec18-03

Design of a More Reliable Power Grid for Puerto Rico

3/26/18 - 4/9/18

Faculty Advisor: Vikram Dalal

Team Members

Logan Lillis - *Communications and Reports Lead*

Ricardo Rodriguez-Menas - *Webmaster and Project Plan Lead*

Heiqal Zamri - *Test Engineer Lead*

Weekly Summary

On Monday March 26th, we had our weekly meeting. We focused our discussion on the updating of the newest set of presentation slides and the upcoming lightning talk on Tuesday the 27th covering a technical challenge. We decided to focus the presentation on our difficulties researching energy storage options for Puerto Rico. For the slides, per Professor Dalal's requests, we decided to focus on solar irradiance, natural gas prices, and energy storage for renewable energy. This research will be combined in both the bi-weekly presentation slides and will also help with the basis for our final presentation slides.

Past Week Accomplishments

- ❖ Create presentation for lightening talk on 3/27
 - Topic: Technical Challenge
 - Delegated Presenter: Ricardo
 - Will talk about energy storage
- ❖ Intensive research on Renewables, Energy Storage, and Natural Gas
 - Heiqal: energy storage
 - Logan: natural gas and renewables
 - Ricardo: Implementation
- ❖ Create Slides for Professor Dalal's meeting 3/22
 - Gas turbines - Heiqal
 - Flywheels - Heiqal
 - Energy Storage - Ricardo
 - PREPA's interconnectivity - Ricardo
 - Nat Gas Deliquification Port - Logan
 - Economics/cost of oil imports - Logan

Pending Issues

- ❖ Need to determine final presentation information/formatting/roles

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Logan Lillis	<ul style="list-style-type: none"> ● Analyzed solar irradiance data from AES regarding non-sunny days ● Looked into types of solar panels/costs associated with different fixations <ul style="list-style-type: none"> ○ Fixed axis more cost effective <ul style="list-style-type: none"> ■ Used in PR already ● Updating weekly meeting minutes ● Writing, proofreading, and gathering information for weekly reports ● Proofreading and re-working of project plan ● Deeper background research on blackouts and lack of maintenance pre-hurricanes in Puerto Rico 	8	45
Ricardo Rodriguez-Menas	<ul style="list-style-type: none"> ● Revised the Project plan, include the changes for Rules of Standards and include the energy storage information on the research ● Updated the website 	2	32
Heiqal Zamri	<ul style="list-style-type: none"> ● Revised the Project plan for changes and update for version 3 as well as the design document version 2 <ul style="list-style-type: none"> ○ Including more information on gas turbines and microgrids ○ Removing any information that we are not using and not important to the project such as uses of flywheel ○ Added more information to the constraints section of the project plan such as the accuracy of the data from the research that we did. 	2	26

	<ul style="list-style-type: none">● Created notes for what we decided to use for final presentation and what we aren't such as how we are not using flywheels in the design		
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Plan for Upcoming Week

- ❖ Lightning Presentation on Tuesday 3/27
 - Ricardo will be presenting on Energy Storage
- ❖ Dalal Slides Research
 - Solar Irradiance - Logan
 - Longest period w/o sun?
 - Minimal "percent" needed to call it a 'sunless' day for solar?
 - Natural Gas - Heiqal
 - Prices with and without imports
 - Energy Storage - Ricardo
- ❖ Refine Design Document and Project Plan
 - Use details from Presentation slides
- ❖ Brainstorm final presentation ideas
 - Economic value of components (Microgrid, Solar Panels, Gas turbines, Energy Storage, Insulation data)