

Photovoltaic Feasibility in Puerto Rico

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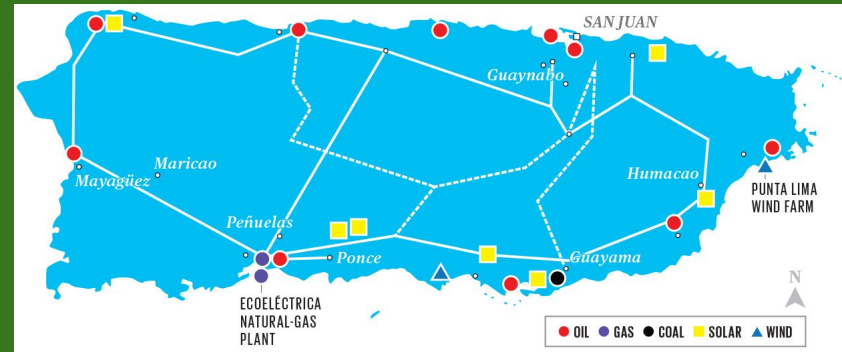
Problem Statement

Our project aims to provide a plan for ensuring reliable and affordable power to all Puerto Rico using photovoltaics combined with battery storage units.

- Puerto Rico's grid is very unstable as a result of frequent hurricanes, outdated power plants, and poor management.
- Adds to Puerto Rico's goal of being 100% reliant on renewable energy by 2050.
- Renovation and modernization of the transmission, distribution, and generation systems.

Residential Rooftop Solar Potential by County

Distributed Solar resource exceeds 20 GW of capacity technical potential.

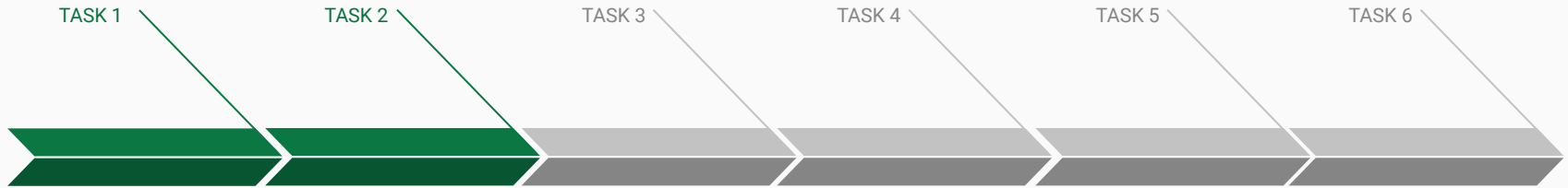


Project Management Style

Hybrid Agile Waterfall:

- Work is broken down into 6 large tasks
- Within each task are many subtasks, those are executed in the agile style
- Team members work individually or in pairs on certain research topics
- May follow agile model more during 2nd semester

Task Decomposition



Develop key guiding questions and/or areas of research.

Make contact with an NREL researcher for primary source data.

Determine which PV system best suits Puerto Rico (community, farm, rooftop, etc.)

Find and apply relevant IEEE standards to our solution

Analyze the cost of our solution to ensure economic feasibility.

Develop a model/graphic/representation of the PV solution for Puerto Rico.

Risks/Mitigation

Risk 1: Final Proposal may fail to meet the goal of 40% energy production via renewables by 2025.

Risk Factor: 0.2

Mitigation: Spend Significant time on research to ensure we can meet this goal.

Risk 2: It may not be possible to use PSS/E to model our grid design.

Risk Factor: 0.75

Mitigation: Educate ourselves on PSS/E as part of the project, or use a different method to present our final plan.

Risk 3: Puerto Rican People may not want to implement rooftop PV systems on their homes/buy into the long term investment

Risk Factor: 0.3

Mitigation: Include in our Project Plan the many benefits to installing PV to convince the Puerto Rican people of the long term benefits.

Personnel Effort *assumed 6 hour weekly contribution

Task	Person-Hours
Task 1: Develop key guiding questions and/or areas of research.	30
Task 2: Make contact with an NREL researcher for primary source data.	10
Task 3: Determine which PV system best suits Puerto Rico (community, farm, rooftop, etc.).	250
Task 4: Find and apply relevant IEEE standards to our solution	20
Task 5: Analyze the cost of our solution to ensure economic feasibility.	100
Task 6: Develop a model/graphic/representation of the PV solution for Puerto Rico.	250

Questions?