



WPI

Reducing Energy Costs on Block Island

Frederick Burgwardt (ME), David Goodrich (ECE), Kevin Maynard (ME), Alexander Titus (RBE)
Advisors: Professor Geoffrey Pfeifer (HUA), Professor Derren Rosbach (CEE)



Problem Statement

The cost of electricity on Block Island is very expensive compared to the national average and brownouts are a regular occurrence because the island runs off of inefficient and environmentally harmful diesel engines.

Goals

Create a plan to lower the cost of electricity, and the amount of harmful carbon emissions, by implementing renewable energy systems on Block Island.

Background

Over the past few years electricity prices on Block Island have sky-rocketed, at some points getting as high as \$0.76 per kWh (C. Warfel, personal communication, April 13, 2014). The island, which runs off of inefficient diesel generators, has suffered these high prices as a result of rising gas prices.

Block Island's main source of income is through tourism. People go to the island for the rustic style of the town and for the fantastic nature reserves all over the island. A solution to alleviate the cost of electricity must not distract from these views.



(K. J. Maynard, personal photograph, April 13, 2014)

Methods of Research

- We received information from several people, including:
 - Bryan Wilson, the liaison between Deepwater Wind (DWW) and the town of New Shoreham.
 - Christopher Warfel, the owner of Entech Engineering on the island.
 - Doug Sabetti, the owner of Newport Solar, a solar photovoltaic (PV) installer in RI.
- We visited the island to talk to our contacts, and to see where DWW plans on implementing their wind farm project.
- Online we found:
 - Censuses about average income and population
 - Online interviews with PV owners on the island
 - Research reports about the Block Island energy problem



(A. D. Titus, personal photograph, April 13, 2014)

Results

- Solar electric systems are the most viable option for saving money while also providing power to the homes of the island residents.
- Community-based systems would be more beneficial for an island this size, however no such system can exist at this point due to the lack of legislation allowing for communal ownership.
- The payback term for solar electric systems is about 7-10 years, and they have a life-span of about 20-25 years.

Plan

- Our final plan:
 - Analyzes options for residents, both year-round and seasonal, to install solar systems at their homes.
 - Provides insight on the severity of the islander's current energy problem.
 - Emphasizes why the islanders need a better alternative to the Deepwater wind project.



(K. J. Maynard, personal photograph, April 13, 2014)

This is a house on Block Island that already has solar panels installed on the roof.

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