

Prototype #1

Test:	Achieve Demand
Description:	Sweep inputs to determine panel and battery numbers that allow for a maximum of 10% excess demand not met for any given day.
Expected Results:	Using general load data we acquired, we hope to be able to make a general estimate of the number of materials needed. Keep in mind this will not be exceptionally accurate.

Test:	Simulation Stress Test
Description:	Certain inputs should provide specific outputs. Using general knowledge, we can test the simulations basic functionalities.
Expected Results:	For example, using only one solar panel would increase the supplemental power needed and/or the load not met.

Prototype #2

Test:	Achieve Demand
Description:	Like the demand testing in prototype 1, except now the inputs are swept to calculate a maximum of 10% excess demand not met by the hour.
Expected Results:	As the client begins tracking the load data for the town of Nichols, we can input more and more exact data, but for now we can hope to determine the number of materials to quite a higher degree of accuracy than before. This is because of the more inclusive hourly data and profiles.

Test:	Profile Accuracy
Description:	Run simulation tests using the different profiles and compare them to the expected values for the location of interest.
Expected Results:	As long as the profiles are accurate, the results should be reasonably close to the expected values.

Prototype #3

Test:	Achieve Demand
Description:	Similar to both previous demand tests, but now both the estimated and measured load curves will be implemented into the simulation as well.
Expected Results:	

Test:	Financial Target
Description:	Using the known cost of the materials, run input sweeps to determine the cheapest option that still meets the necessary demand.
Expected Results:	Given the price of the line generalized at about 2 million dollars, and applying a basic 20 year plan, we hope to achieve a pricing of less than 3 million dollars.

Test:	Variable Solar Capabilities
Description:	Sweep the simulation inputs but determine minimum panel and battery numbers for 80, 90, or 100% of load.
Expected Results:	

Test:	Growth Simulation
Description:	In order to keep up with the town's natural growth, a section will be added to the simulation to try and account for this. Using this section, determine if the proposed plan is still viable with growth.
Expected Results:	Hopefully, we can use this to design a system that is already capable of handling growth.