**Release and Iteration Plans**

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Release Plan

# Release 1

Delivery date: Week 9 (September 19) Total Story Points: 64

**Release Description**

The first release targets on implementing all of the main required functionality for the solar power calculator. It will allow users to choose their panels, set their panel settings and perform calculations. The user is able to determine how much power they will be able to generate, how much money this power generation could save them and the greenhouse gas reductions from the electricity generated. They will be able to view various breakdowns of this information, as well as receive summaries on the expected return on investment for the product.

## Panel Specification Choices

Giving the user the option to view results from a selection of panels will allow the program to be considerably more accurate for the majority of users. This also gives the user the option for users to accurately compare results from multiple panel types.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Panel Specifications | Story Points |
| 43 | As a Potential Purchaser I want to be able to choose between a variety of panel specifications so that I can determine the one best for my situation. | **9** |
|  | Story Point Sub-Total: | **9** |

## House Specification Choices

This feature will give the user the option of choosing the facing direction and standing angle for the panel. This will allow the program to much more accurately calculate the expected power generation for the system.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: House Specification Impact | Story Points |
| 16 | As a Potential Purchaser I would like to be able to put in the specifications of my roof so that I can receive results specific to my installation requirements. | **9** |
|  | Story Point Sub-Total: | **18** |

## Power Generation

This feature will allow the user to choose their preferences for particular solar panels and then determine the amount of power they are likely to save on a yearly basis. This is the core purpose of the calculator, and as such, is required for the calculator to be of any assistance to the users.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Power Generation | Story Points |
| 1 | As a Potential Purchaser I want to see how much electricity I am likely to generate so that I can compare it to my actual usage. | **8** |
|  | Story Point Sub-Total: | **26** |

## Money Savings

This feature will allow the user to view how much money they are likely to save in a given year from the solar panel installation. This is determined by having the user input their power costs, and then determining the amount saved by not needing to purchase this power from the grid.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Yearly Money Savings | Story Points |
| 3 | As a **Potential Purchaser** I want to see the potential yearly cost savings from a variety of panel sizes, so that I can determine the one most effective for my situation. | **8** |
|  | Story Point Sub-Total: | **34** |

## Greenhouse Gas Reductions

This feature will show the user how much Green House gas has been reduced through the use of the solar panels. This feature is aimed at people who are environmentally conscious, and may be looking to buy solar panels due to this reduction.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Yearly Carbon Reductions | Story Points |
| 4 | As a **Potential Purchaser** I want to see the carbon reductions from a variety of panel sizes, so that I can see how each individual panel reduces my carbon footprint. | **7** |
|  | Story Point Sub-Total: | **31** |

## Price Break-Even

This feature will allow the user to enter in their panel and its cost, and determine the amount of time it will take for the panel to pay itself back. This provides an extremely helpful feature to the use, as it is one of the first things they would ask themselves when wanting information about a solar panel.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Break-Even Time | Story Points |
| 5 | As a **Potential Purchaser** I want to see how long it will take the unit to break even in costs so that I can determine whether the investment is worth it. | **7** |
|  | Story Point Sub-Total: | **38** |

## Total Savings

This feature will allow the user to see the total savings the system will cost them, as well as a breakdown of how these savings are spread over the life of the product. This is a major point of interest when solar panels are being purchased.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Total Lifetime Savings | Story Points |
| 6 | As a **Potential Purchaser** I want to see how much money the unit will save me over its lifetime so that I can determine its actual value. | **7** |
|  | Story Point Sub-Total: | **45** |

## Total Panel Power Generation

The goal of this feature is to show users the optimal panel specifications which would allow them to generate all of their own power (I.e. Require no power from the grid). This feature is targeted at both users who may wish to lower their carbon footprint, or users which may not have access to their grid (such as in rural areas).

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Total Panel Power Generation | Story Points |
| 8 | As a**Potential Purchaser** I want to see the total number of solar panels required to meet my expected demand so that I am not reliant on the power grid. | **6** |
|  | Story Point Sub-Total: | **51** |

## Potential Earnings From Excess Power

The goal of this feature is to allow customers to see how much money they could make from generating excess power in their systems. This appeals to a wide range of customers, as all customers at some point in time are likely to earn a small amount of income from the process.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Potential Energy Earnings | Story Points |
| 9 | As a **Potential Purchaser** I want to see the potential earnings I can receive from excess energy generation so that I can see if the investment is worthwhile. | **6** |
|  | Story Point Sub-Total: | **58** |

## Current Money Saved

The goal of this system is to allow existing users to be able to use the calculator and determine how much the system has currently saved them since it was first installed. This would be quite widely used as users would continually check on the system over its lifetime to see how it has performed.

|  |  |  |
| --- | --- | --- |
| Story ID | Story Title: Potential Energy Earnings | Story Points |
| 28 | As an **Existing Owner** I want to be able to see the total estimated money the system has saved for me since it was installed so that I can determine its current benefit. | **6** |
|  | Story Point Sub-Total: | **64** |

# Delivery Schedule

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Week 6 | Week 7 | Week 8 | Mid-Semester Break | Week 10 | Week 11 | Week 12 | Week 13 |
| Iteration 1 | | | Iteration 3 | | Iteration 4 | |
| Release 1  Sept. 18 / 19 | | | Release 2  Oct. 23 / 24 | | | |

## Estimated Velocity: 64

Iteration Plan

# Iteration 1

**Total Story Points: 64** **Total Hours: 58**

## Current Velocity: Undetermined (Iteration has not yet begun).

## Google App Engine and Repository Setup/Learning (No Story ID)

**Pre-Requisites:** None

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Download and Install the App Engine, the Google App Engine plug-in for Eclipse and GitGub. | 3 Hours | - |
| 2 | Complete the online tutorials uploaded by Google to learn the basics of the environment. | 6 Hours | - |
| 3 | Upload the examples to the remote Git repository. | 2 Hours | - |
| 4 | Check that files committed by other uses are able to be accessed and modified appropriately. | 2 Hours | - |
|  | Story Points: N/A Total Hours: | 11 Hours |  |

## Panel Specifications (Story ID: 43)

**Prerequisites**: None

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Research potential panel options to determine common types. | 4 Hours | - |
| 2 | Add a variety of panels to the Google Apps Database, with the following information:   * Dimensions * Power Generation * Expected Panel Degradation (Per Year) * Panel Effectiveness Decline, Based on angle. | 3 Hours | - |
| 3 | Add a selection menu, with basic descriptions and radio boxes for selecting each of the entered panel types. | 3 Hours | - |
|  | Story Points: 9 Total Hours: | 10 Hours |  |

## Panel Orientation Choices (Story ID: 16)

**Prerequisites**: None

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Research effects of panel facing and elevation angle on the energy generation of the panel. | 2 Hours | - |
| 2 | Add the panel orientation options to the selection menu, allowing users to choose their preferred settings. | 2 Hours | - |
|  | Story Points: 9 Total Hours: | 4 Hours |  |

## Power Generation (Story ID: 1)

**Prerequisites**: Panel Specifications, Panel Orientation Choices.

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Develop an algorithm for determining the power generated, taking into account:   * Power Generation - Based on Brisbane Figures * Panel Effectiveness Based on Angle * Shade on the System | 4 Hours | - |
| 2 | Develop an Algorithm for Determining the unmodified power generation based on the time since the panel was installed, due to panel degradation. | 1 Hour | - |
| 3 | Display a table of power generation values for each year the panels are expected to produce electricity. | 2 Hours | - |
|  | Story Points: 8 Total Hours: | 7 Hours |  |

## Money Savings (Story ID: 3)

**Prerequisites**: Power Generation

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Add an input field to allow for the user to input the cost of their electricity (per Megawatt). | 1 Hour | - |
| 2 | Take the list of power generation values over the product's lifetime and using the user's specified electricity price, generate a list of yearly savings. | 2 Hours | - |
| 3 | Display the list of power generation values, as a table, to the user. | 1 Hour | - |
|  | Story Points: 8 Total Hours: | 4 Hours |  |

## Greenhouse Gas Reductions (Story ID: 7)

**Prerequisites**: Power Generation

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Take the list of power generation values over the product's lifetime and using the user's specified electricity price, generate a list of carbon savings. | 2 Hours | - |
| 2 | Display the list of carbon savings values, as a table, to the user. | 1 Hour | - |
|  | Story Points: 7 Total Hours: | 2 Hours |  |

## Break-Even Time (Story ID: 5)

**Prerequisites**: Money Savings

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Add an input field for allowing the user to input the cost of their electricity (per Megawatt). | 1 Hour | - |
| 2 | Create an algorithm to calculate the Break-Even time (in months and years), by summing the list of yearly power generation values until the product cost is reached. | 1 Hour | - |
| 3 | Create a form element to show the Break-Even time as part of the information listed for calculations. | 1 Hour | - |
|  | Story Points: 7 Total Hours: | 3 Hours |  |

## Total Savings (Story ID: 6)

**Prerequisites**: Money Savings

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Create an algorithm which takes the yearly earnings list and sums each year to determine the total product savings. | 1 Hour | - |
| 2 | Create a form element to show the Break-Even time as part of the information listed for calculations. | 1 Hour | - |
| 3 | Create a form element to show the Break-Even time as part of the information listed for calculations. | 1 Hour | - |
|  | Story Points: 7 Total Hours: | 3 Hours |  |

## Total Panel Power Generation (Story ID: 8)

**Prerequisites**: Power Generation

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Create an input field to allow the user to enter their power consumption. | 1 Hour | - |
| 2 | Create an algorithm to determine the cheapest solution that would generate enough power to meet the needs of the user. | 4 Hours | - |
| 3 | Create a form element which displays the result of the above algorithm, which also contains a short disclaimer saying that this is based on estimated generation, and occasionally it may not generate enough. | 1 Hour | - |
|  | Story Points: 7 Total Hours: | 6 Hours |  |

## Current Money Saved (Story ID: 28)

**Prerequisites**: Power Generation

|  |  |  |  |
| --- | --- | --- | --- |
| Task ID | Task Description | Estimate | Taken |
| 1 | Create an input field to allow the user to enter the install date of the panels. | 1 Hour | - |
| 2 | Create an algorithm to sum the power generated each year, starting at the inputted date and ending at the current date. Fractional years are portioned based on how much of the year the system was generating power. | 3 Hours | - |
| 3 | Create a form element which displays the result of the above algorithm, which also contains a short disclaimer saying that this is an estimate only and that their actual recorded figures may differ slightly. | 1 Hour | - |
|  | Story Points: 6 Total Hours: | 5 Hours |  |