**Context**

**Note: In this document calculator grid represents All the PROJECT INPUTS.**

**(1) Overview of the project and User Implication**

* Solar Power usage has been increased drastically as it is a pollution free. This is because, no greenhouse gases are emitted after the solar panel get installed. Photovoltaics (PV) or concentrated solar power are both methods of converting sunlight into electricity.
* The purpose of this Project is to helps project planner to calculate the actual cost of proposed grid-connected solar PV by comparing it with the cost of electricity from Alberta’s Grid. Users can use this Alberta solar calculator to estimate their cash flow for the year with and without solar PV systems.
* Moreover, PV Output Project Input grid in the calculator asks user to enter their solar PV Power in Kilowatt (kW) as well as estimated PV energy used annually in unit Kilowatt-hour (kWh). However, if user have monthly estimate or summary file then they can upload after checking the check box for that and click on button UPLOAD PVWATTS. It will allow user to upload report in .CSV file format and consider value for all the 12 months.
* This calculator later in **Grid Electricity Cost** asks for current electricity usage cost estimation from user’s electricity bill and type of service they use (such as Residential, farm, or commercial) for the comparison of the cost of solar PV to purchasing grid electricity. Furthermore, in this grid calculator also asks for the recent variable portion of transmission and distribution cost. Because the calculator follows electricity billing method of Alberta. This web-application has also provided document to guide users for calculating transmission and distribution rates.
* Later in **Site Usage** grid allow user to enter what percentage of solar PV energy has been used simultaneously by the building or site loads. In the case of a small PV system that never exceeds the site loads and never reverses the meter, those users can enter 100%. When consumption of annual energy by load is lesser than the generation of annual energy by solar PV then this calculator grid shows error message and tell user to adjust numbers. Even though users can proceed with further calculation. However, instead of annual percentage of Load Offset user can also enter monthly estimate of building loads in kWh then calculator will calculate the overall percentage from those 12 months value.
* In the **Project Costs** calculator grid, User should enter overall project cost after the installation of solar PV with rebate if have any, otherwise value will be zero. On the other hand, it will also be reliable for user to enter Loan details if they would have taken loan for the project building. In addition, User can enter yearly cost estimate of insurance, general maintenance budget, Schedule replacement cost as well as years between scheduled replacement. Every other information’s in this grid are saved from previous grid.
* In **Inflation and Cost Escalators** grid in calculator, it is recommended to leave all the input fields with default value which reflects current situation of Alberta unless user is confident for having preferable numbers.
* In the last grid, that is **Economic Indicators**, which shows all the calculated economic indicators – cost as a output as well as two, line graphs: 1) shows all the cost($) per kWh created at any point in time during analysis period. 2) Shows total cost in dollar invested for each option at any point in time within 25 years of analysis time.

**(2) Mind Map**

**1) Scop and Overview :**

Text, application

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Scop of the project include questions what is to be tested? Why it is to be tested? Who will verify the document ? Who will validate the document?

**Scop:**

* Network connectivity should be tested to start the application
* All the given hyperlinks should redirect users to the related page. Such as, solar funding program.
* Input field should take all the positive, negative and zero values from user in the calculator in each grid and it should calculate overall cost as well as show Graphs in the last grid of calculator in Alberta solar calculator web application.
* All the buttons click in each grid should work, save inputs, print report, and allow upload and export file and take user to the next grid of calculator.
* Alberta Solar Calculator web application should work locally, and on the real word devices and browsers.
* Answer to the why it is to be tested? : To verify and ensure the quality of existing and new feature if it would be added any, for stable use.
* Project should be verified and validated by Project sponsors and customers.

**Overview**:

* Goal of this project is to calculate annual cost of solar PV (Photovoltaics) grid-connection by comparing it with Alberta’s electricity cost.
* Decide project deadlines and schedule work for each sprint.
* Estimate budget of developing the project.
* Required technology for the project such as Which programing language, platform and frameworks are required to build the project.

**2) Roles and Responsibility**

Graphical user interface, text

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* Product Owner – Organize priority and handle Product backlog and defines the project vision.
* Key Stakeholders – Provide resources and appropriate information about their business.
* Developing Team
* Front-End – Develop User Interface
* Back-End – Develop backend code logic, Examine the code, as well as perform unit, and integration testing.
* Scrum Master – Instruct team members, conduct Stand-up (daily) meetings, and help Product owner with product backlog.
* Test Engineer – Perform Overall system/application testing.
* Quality Owner – Integrate their quality part of the system with other QMS in a way that is relevant, compliant, and efficient.
* Project manager – Concentrates on product development and release.

**3) Test Approach : Function and Non-Functional testing types are included in this part.**

Timeline

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A screenshot of a computer

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Graphical user interface, text, application

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Graphical user interface, text, application

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**6) Release Control (Entry/Exit Criteria) :**

Diagram

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**7) Risk Analysis and Mitigation :**

I have created two mind maps for risk Analysis and Mitigation.

**The below mind map shows Risk Analysis and Mitigation Techniques:**

Timeline

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**8) Review and Approval :**

Review and Approval of test strategy document:

Application

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**9) Traceability Matrix :**

It is a document in a table form:

Diagram

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**Overall Mind Map**

Note: Overall Mind Map image shown below is not clear as required so I have placed all the individual mind map for all the test strategy components.

Diagram, schematic

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**Conclusion**

Firstly, I have explained the purpose of this solar calculator web application for reader to understand the topic of the document. Moreover, I have also explained what each grid (Project Inputs) in the calculator does. What input it required from the users and what output it provides in the last grid of the calculator. Secondly, I have created mind map in XMind desktop application because the application arrangement of the elements makes it more accurate for reader. Mind Map is used for brainstorming, problem solving, and decision making and also tester can know what is missing and what not. From the Mind Map tester will know what to test for the web application. Hence, in this document I developed Mind Map for Alberta Solar Calculator that shows testers what to test and how they can approach the testing. There so many functionalities in the whole Alberta solar web-application but I mostly concentrated on the Solar Calculator and detailed main functionality of the calculator in the Mind Map for functional and non-functional testing.