General
ROI
Inputs
Solar Model

Our App

Our app utilizes building energy consumption metrics and solar intensity data to calculate accurate ROIs for solar power generation installations. This tool allows users to see how different solar power systems match up to their requirements, so they can make informed decisions. There could also be an extension into other Greenwave business domains such as power storage sizing for cloudy days and the night time.

Our Why

Fossil fuels are the primary source of energy in Canada and pose serious threats to the environment. Therefore, they need to be replaced by more renewable and sustainable alternatives. Solar energy is a renewable and sustainable source of green energy that can be used in place of fossil fuels. So, a tool that can analyze and calculate the returns on solar power installations may prove very helpful in persuading more people and business to install their own solar generation solutions. Increasing the use of solar power over fossil fuels can help slow the detrimental environmental effects our world is experiencing today.

Questions We Aim to Answer

People may experience uncertainty when considering installing solar power solutions. They may have some questions and the SolarSize application aims to answer some of those questions.

How do you choose the best panel type?

How many panels should be installed?

What level of financial return can be expected?

Application Architecture

Frontend:

- Vue.js - Page views
- Highcharts - Create and display graphs

Backend:

- Laravel - Server and data functions
- Python - Solar estimation model

Data:

- NASA POWER API

Future Additions

We envision a number of future additions and advancements that could be implemented as extensions of the current SolarSize application.

1. Solar Power Installation Comparisons - For example, comparing 20 panels of type A versus 30 panels of type B

2. User Accounts - Enable client to access application without company advisors

3. Save Locations and Related Data - Implement data base for client locations and details to enable faster analysis

Acknowledgements

We would like to thank the following people for their involvement with our project.

Project Advisor: Dr. Timothy Maciag

Project Mentor: Dr. Kin-Choong Yow

Project Idea: Greenwave Innovations

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Sources

PV Performance Modeling Steps

Global-to-Direct Irradiance

Photovoltaics Education

SaskPower Net Metering After 2019

SaskPower Net Metering User Guide

Solar Power Systems Return on Investment Analysis