

SUSTAINABILITY SCHOLARS PROGRAM

Fall 2020

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region.

Note: Projects must be completed remotely during the COVID-19 pandemic.

- Visit the [Sustainability Scholars Program website](#) to learn [how the program works](#) and to [apply](#).
- Be sure to review the [application guide](#) to confirm your eligibility before applying.
- **Applications close at midnight on Sunday September 20, 2020.**

Research project title: Impact of architectural design on the solar PV generation potential of a house to achieve its net-zero energy target

Sustainability Goal or Operations Plan objective

Climate Leadership

Long Term Goal: Improving the affordability of net-zero energy houses.

Project description

This project will examine the impact that architectural design (form, # of stories, roof design, and orientation) has on the total PV generation potential of the roof of a single family home (new construction). Often, net-zero energy design studies only look at the level of energy efficiency that is required to achieve a net-zero energy design. However, some architectural design choices can significantly reduce the amount of suitably oriented roof area to generate enough solar electricity to offset energy consumption. This project would help to provide guidance on the impact that building form, # of stories, roof design, and orientation have on achieving net-zero energy consumption.

Scope of Work:

- Perform a literature review to identify any similar studies that have been conducted.
- Evaluate the impact of available roof area of different slopes and orientation with changes to form, # of stories, roof design, and house orientation.
- Calculate total solar generation potential for different roof areas for various locations in BC doing a simplified modelling using <https://pvwatts.nrel.gov/> or similar tool.
- Develop general guidance based on analysis of the impact of architectural design on total solar PV generation potential.

Deliverables

- A short guide that graphically depicts the impact that architectural design (form, # of stories, roof design, and orientation) has on the total PV generation potential of the roof of single family homes.

- A final report, containing a summary of completed work with recommendations, complemented by a final presentation to key stakeholders.
- A final report for the UBC Sustainability Scholars online project library.

Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between October 19, 2020 and March 12, 2021
- The Scholar will work primarily from home, with periodic update meetings with the mentor. The schedule can be flexible, provided that 250 hours are completed during the project timeframe.

Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Demonstrated experience working with excel and large amounts of data
- Interest in or familiarity with solar PV generation
- Interest in or familiar with the principles of net zero energy housing/passive housing construction
- CAD skills to graphically present results

Applications close **midnight Sunday September 20, 2020.**

Apply here: <http://sustain.ubc.ca/scholarsapply>

Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

Below are some links to useful resources to help you with your resume and cover letter (there are many more online). Some of these resources also provide information on preparing for your interview.

Resume workshop for prospective Sustainability Scholars: <https://www.eventbrite.ca/e/resume-workshop-for-prospective-sustainability-scholars-tickets-117422877989>

<https://students.ubc.ca/career/career-resources/resumes-cover-letters-curricula-vitae>

<https://www.grad.ubc.ca/current-students/graduate-pathways-success>

