

SUSTAINABILITY SCHOLARS PROGRAM

Summer 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.

- 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 February 2, 2020.**

Research project title: Investigating barriers to electrical panel upgrades in home retrofits

Research supports the following City of Vancouver policies

- Greenest City Action Plan/ Climate Emergency Response Plan
Specific goal area/ big move(s): Big Move #4: Zero emissions space and hot water heating
- Renewable City Action Plan

Outline scope of project and why it is of value to the City of Vancouver and describe how and when the scholar's work will be actionable

Background

Buildings account for over 50% of the City's Greenhouse Gas emissions. This is a direct result of fossil fuel combustion in our buildings for heating, hot water and other services. In B.C. we are fortunate to have 'clean' electricity from hydro and other renewable sources. Therefore, by replacing methane (natural) gas systems with electric equivalents such as heat pumps we can drastically reduce our GHG emissions.

The City has a plan to require all new buildings to install zero emissions (i.e. electric) equipment, but the remaining challenge is retrofitting our existing building stock from fossil fuel systems to electric. A primary barrier to electrifying many homes is the limited electrical panel capacity (i.e. 100 amps or less in many homes) and potential need to upgrade the utility infrastructure (neighborhood poles and power lines) to support an all-electric home transition.

Why it's Important

Upgrading the panel and infrastructure can be very costly to a homeowner, and therefore seeking ways to avoid or minimize these costs is critical to the success of our retrofit policies. At the very least, if we can document and make clear the upgrade triggers and costs to electrify a home, a homeowner can factor this into their budget.

Scope of Work:

- Research current 'smart' home load management systems that can minimize the peak load on a panel. Speak with local panel suppliers to understand current product availability
- Work with BC Hydro staff to understand the triggers and costs for electrical service upgrades, and what could be done to a) avoid upgrading the service, b) streamline the process and/or c) minimize costs. This will include conducting a post-retrofit analysis of homes that underwent an electrical service upgrade in collaboration with BC Hydro staff.

Deliverables

Depending on the issues and solutions identified in research, prepare:

- A table of typical electrical upgrade requirements and costs required by the utility for a variety of Vancouver homes and neighborhoods,
- Recommendations for technology and policy solutions to minimize the cost burden

The deliverables must include:

- A summary report including expert feedback and summary of literature review
- A public facing final report (or executive summary) for the UBC Sustainability Initiative website

Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between May 4 to August 14, 2020
- The scholar is to complete hours between 9am and 5pm, Monday to Friday, approximately 20 hours per week.

Skill set/background required/preferred

- Excellent research and writing skills.
- Demonstrated interest in zero emissions building design and renewable energy solutions
- Strong technical writing skills
- Strong analytical skills
- Ability to work independently
- Demonstrated time management skills
- Familiarity with quantitative research methodologies and implementation
- Familiarity with building codes and/or building design and construction is an asset
- Familiarity with electric systems or grid infrastructure is an asset
- Particularly suitable for a Masters of Engineering (preferably electrical), but recruitment may be open to other departments



Applications close **midnight Sunday February 2, 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.

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

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

<https://www.grad.ubc.ca/cover-letter-cv-resume-templates-ubc-career-services>

The Centre for Student Involvement & Careers will host a resume & cover letter webinar tailored for graduate students on Tuesday, January 21, 2020 from 12:00-1:30. Registration will open approximately two weeks before the webinar, and can be accessed at Careers Online.

