Summer 2024 Sustainability Scholars Program Internship Opportunity

The UBC Sustainability Hub is pleased to offer current UBC graduate students the opportunity to work on sustainability internship projects. Successful candidates work under the guidance of a mentor from the partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region. These opportunities are paid. The pay rate for the summer 2024 program is $27.50/hour or $6,875 for a 250-hour project.

- Visit the Sustainability Scholars Program website to learn how the program works and to apply.
- Be sure to review the application guide on the Apply page to confirm your eligibility before applying.

Applications close at midnight on Sunday January 28, 2024.

Project title: Creating an analytical tool to inform decarbonization of public buildings (Musqueam First Nation)

Project Background & Overview

As part of their plan to move towards a sustainable emission-free community, Musqueam First Nation is looking for ways to reduce GHG emissions from public buildings. In this project, the Musqueam Public Works Department is looking to assess the cost and environmental impact of public building decarbonization on Musqueam Reserve.

Musqueam Public works Department operates multiple public buildings in Musqueam Indian Reserve #2 that are used by the community members for different purposes including but not limited to gatherings, ceremonies, workshops and education, and community events. All the public buildings have space heating and hot water equipment. The goal of this project is to develop a tool that enables assessing the cost and environmental impacts of decarbonizing space and water heating in these buildings considering the commercially available technologies.

The purpose of this project is to assess different aspects of building decarbonization including capital cost, operation and maintenance cost, utility bills, and GHG emission reduction potential. The cost impact will be determined based on the upfront cost, maintenance cost, and utility bill cost of using different heating, cooling, and water heating systems in the buildings. The cost will be compared to the existing baseline and will be assessed based on the lifecycle of the equipment. In the baseline scenario, natural gas is used in public buildings in space heating and hot water systems with the existing equipment. Decarbonization scenarios may include options such as heat pump space and water heating, renewable natural gas utilization, and more efficient natural gas equipment.

The research will consider the lifetime of the existing mechanical equipment and provide a timeline that shows the suggested replacement time, the cost of different options, and the estimated operation cost and utility bills for each building. The research will also include an estimate of the GHG emissions associated with each option for the studied buildings. In addition to cost analysis, the GHG emissions reduction from building decarbonization will be

assessed over the lifetime of the installed equipment. The GHG emissions in each scenario will be calculated based on the carbon intensity of the fuel used and the efficiency of the proposed equipment.

Project scope

- Best practices scan to identify existing methods and tools to assess cost and GHG impact of decarbonizing portfolios.
- Based on the best practices scan and data that will be provided by the project mentor
    - Develop a tool to assess the cost and environmental impacts of public building decarbonization in Musqueam,
    - Use the tool to assess the capital and operation cost of different space and water heating options to replace the existing equipment at the end of their lifetime in Musqueam public buildings,
    - Use the tool to calculate the GHG emission reduction potential from decarbonization of public buildings on Musqueam Reserve,
- Develop a timeline that shows the capital cost of replacing the existing equipment at the end of its lifetime for two case study buildings.

Deliverables

- A final report containing a summary of the work completed
- A final report for the online public-facing Scholars Project Library.
- An excel-based tool for the Public Works Department to estimate the cost and GHG emissions of public buildings decarbonization

Time Commitment

- This project will take 250 hours to complete
- This project must be completed between May 1 to August 15, 2024
- The Scholars is to complete their hours between 9 am and 5 pm, Monday to Friday, approximately 17 to 20 hours per week
- This project may be completed remotely but the scholar is welcome to visit the community.

Required/preferred Skills and Background

☒ Excellent research and writing skills
☒ Demonstrated interest in sustainability
☒ Statistical analysis
☒ Strong analytical skills
☒ Ability to work independently
☒ Deadline oriented
☒ Project management and organizational skills
☒ Demonstrated experience in building energy modelling and analysis
☒ Familiarity with benchmarking methods and tools

☒ Experience with financial modelling and analysis
☒ Familiarity with principles of building decarbonisation, an asset
☒ Experience working with large/complex data sets, an asset

Additional information
Musqueam is an urban First Nation community in British Columbia. Musqueam's ancestors have lived in the Fraser River estuary for thousands of years. Today, portions of Musqueam's traditional territory are called Vancouver, North Vancouver, South Vancouver, Burrard Inlet, New Westminster, Burnaby, and Richmond. Today, Musqueam Reserve lies within the boundaries of the City of Vancouver.

Musqueam is a self-governing nation with a vision to ensure enhanced quality of life for all generations of Musqueam people to develop a sustainable, self-reliant, vibrant community that is built upon the historical and traditional values of the Musqueam community.

Applications close **midnight Sunday January 28, 2024**
Apply here: Click here to apply
Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

We are holding a special **resume preparation workshop for prospective Scholars** on January 23, 2024. Click here for details and to register.

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