

Summer 2021 Sustainability Scholars Program Internship Opportunity

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 January 31, 2021.

Research project title

High-level building energy retrofit strategies for BC communities: Maximising GHG emissions reductions from existing building sector in different case study communities with minimum local government effort applied

Project description

The Community Energy Association (CEA) is interested in helping communities reduce GHG emissions by as much as possible, and existing buildings are a major area to tackle. CEA is interested in guiding communities towards as efficient a building GHG retrofit strategy as possible for different community types given their limited capacity (i.e., to reduce emissions from the existing building sector by as much as possible with the least effort).

For the existing building sector to pull its weight in meeting community 1.5°C GHG reduction targets by 2030, 50% of emissions will need to be reduced.

50% of emissions from existing buildings does not correspond to 50% of existing buildings. Building emissions are unevenly distributed, as some buildings emit much more than others. For example, the City of Richmond estimates that 50% of its GHGs from existing buildings are produced from just 2,300 buildings, while 50% of their buildings would be 18,000 buildings. Concentrating on the 2,300 highest emitters should be much more time efficient and effective, while measures start being put in place to tackle the remaining part of the building stock.

The purpose of this project is to investigate a few different types of communities, particularly communities where CEA is working in, to identify which buildings are the highest emitting to get to that 50%, and create a high-level strategy (including policy and planning tools) to sharply reduce / eliminate those emissions.

Urban communities may see a majority of emissions from commercial and industrial buildings, and so working with those will be critical. Some rural communities will see a majority of emissions from the oldest housing stock, in addition to whatever commercial and institutional

buildings they have. Communities that do not have access to natural gas will see the most emissions from buildings that use heating oil and propane, and the least from buildings that use electricity. Through this, the Scholar identify what type and how many buildings would need to be targeted for the 50% of emissions threshold. To do this, the Scholar will need to review community (and in some cases corporate) GHG emissions inventories, building assessment information, and information on building archetypes and fuels being used. Interviews with CEA staff, NRCan, the Province, local governments and utilities will be necessary, and the collection and analysis of data.

Having identified which and how many buildings of certain types to target, the Scholar should formulate recommendations, (i.e., a high-level strategy, on how to target those buildings). To do this the Scholar will need to review measures that should be implemented in those building types for substantial emission reductions, and then local government levers to achieve these reductions. Interviews with CEA staff, the Province, local governments, utilities, and building energy consultants (from Energy Advisors to commercial / institutional buildings) will be necessary. In addition, the Scholar will likely need to research incentives, rebates, and financing mechanisms for retrofits including but not limited to BC Hydro, FortisBC, CleanBC Better Homes, and financing mechanisms like BC's potential forthcoming PACE program. Multi-Unit Residential Buildings (MURBs) and commercial buildings may be particularly challenging areas, but actions and opportunities for these will be looked at.

CEA suggests that this is done in 3 communities. One relatively urban (e.g. Kelowna), one smaller or more suburban (e.g. Esquimalt or Penticton), and one small and rural (e.g. a small residential community in the Kootenays). Depending on time taken per community, fewer or more communities could be selected.

CEA will intend to use this work to guide communities in their retrofit activities, its own planning and coaching work in recommendations to communities, and its implementation projects which actively implement building retrofits.

Deliverables

A report containing a summary of work completed including:

- A spreadsheet (Excel) demonstrating which buildings and how many comprise 50% of the GHG emissions from the existing building sector in each community.
- A document summarising the findings from the interviews conducted.
- A document (Word) containing high-level strategy or recommendations for each of the communities to achieve maximum GHG emission reductions from these buildings, including a list of potential opportunities, barriers, pros and cons of the approaches.
- If sufficient time, the student may be requested to also create a slide deck (Powerpoint) of their main findings, and present this. There is flexibility on this deliverable.
- Final report or executive summary for the online Scholars Project Library

SUSTAINABILITY SCHOLARS PROGRAM

Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between **May 3 and August 13**.
- The scholar is to complete hours between **9am – 5pm Monday to Friday (there is a high degree of flexibility on this)**, approximately **20** hours per week.

Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with research methodologies and survey techniques
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Strong technical and drafting skills
- Comfortable interacting with strangers to conduct public/in person surveys
- Familiarity with or interest in building energy retrofits, building energy emissions reductions an asset

Applications close **midnight Sunday January 31, 2021**

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 19. [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>