

Summer 2022 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 30, 2022.

Project Title: Leveraging existing policies to reduce embodied carbon in retrofits

Project Background & Overview:

Community Energy Association (CEA) is the first stop for communities in Canada looking at climate action and energy sustainability. Most of CEA's work has historically been with local governments in BC and covers planning, coaching, and implementation.

CEA is currently actively finding pathways for communities to realise deep carbon savings in line with the IPCC's 1.5C report (approximately 50% GHG reductions in the next 10 years and 100% reduction by 2050), and to consider embodied as well as operational carbon. It is this challenging area of research that is driving this Project.

Globally, the building and construction sectors account for nearly 40% of global GHG. Current building codes address operating energy but do not typically address the impacts of embodied carbon in building materials and products.

However, more than half of all GHG emissions are related to materials management (including material extraction and manufacturing). As building operations become more efficient, these embodied impacts related to producing building materials become increasingly more significant.

Embodied Emissions are built-in, "now" emissions. As we retrofit our buildings and build to the upper steps of the BC Energy Step Code, choosing materials with high embodied carbon can be worse for carbon emissions than not retrofitting at all or building a Step 3 home. This can be counterintuitive, but in an all-electric building with low-carbon heating, the lifecycle emissions from producing, transporting, and disposing certain materials are greater than the operating emissions over the lifespan of the building.

Project description

CEA is interested in determining the optimal pathways for reducing embodied carbon in existing buildings and for upper step code homes from financial and carbon budget perspectives. Some pathways may be better from a financial perspective, others may be better from a carbon budget perspective.

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By “budget” we mean looking at initial capital cost and initial embodied carbon, then looking at operational costs and operational carbon, finally looking at end of life costs and carbon. The analysis should clearly differentiate these 3 (and more if desired) lifecycle stages. Comparison of these pathways to Business As Usual is important.

CEA is working closely with the District of Squamish, the Resort Municipality of Whistler and the Squamish Nation, as well as other players (e.g. Pacific Institute for Climate Solutions), to help these communities implement policies to reduce embodied emissions in new buildings, infrastructure and existing buildings.

The Scholar’s work will therefore be an essential component of this overall 2-year project, and is likely to help result in real change. By determining optimal carbon budget pathways, this project will help the economic, environmental and social well-being of communities across BC.

CEA intends to then weave the outcomes into our plans, coaching networks, and implementation strategies.

Project scope

1. Review existing CEA research to identify:
 - 7 to 10 archetypes of existing buildings with the highest GHG emissions.
2. Conduct a scan of BC policies and incentives (including the Green Buildings report produced by a former Sustainability Scholar for the District of North Vancouver; Making Embodied Carbon Emissions Mainstream, by Hanna Teicher; and other documents provided by CEA) to analyze up to 10 different strategies (policies and incentives) to reduce embodied emissions for existing buildings. Those strategies should be selected based on their embodied carbon reductions and their feasibility across the Province.
3. Adapt the methodology from CEA’s New Buildings research to create a standardized approach for existing buildings.
4. Based on the research identify links and opportunities between the strategies and existing policies, tools and incentives.

Deliverables

- A final report containing a summary of the work completed
- A final report for the online public-facing Scholars Project Library.
- Suggestions for future research and implementation strategies
- Final presentation to CEA team and possibly broader audience, including local government staff and/or elected officials

Time Commitment

- This project will take 250 hours to complete.
- This project must be completed between May 2 and August 12.
- CEA is happy for the student to follow a flexible work schedule, but weekly check-ins and reviews of progress to date will be required, particularly early on.

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Required/preferred Skills and Background

- ☒ Excellent research and writing skills
- ☒ Demonstrated interest in sustainability
- ☒ Familiarity with research methodologies and survey techniques
- ☒ Community engagement experience
- ☒ Strong analytical skills
- ☒ Ability to work independently
- ☒ Deadline oriented
- ☒ Project management and organizational skills
- ☒ Demonstrated experience in Local Green Buildings practices
- ☒ Familiarity with benchmarking methods and tools
- ☒ Experience with financial modelling and analysis
- ☒ Knowledge of the Building Code and of local governments levers/current practices, an asset

Applications close **midnight Sunday January 30, 2022**

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>