

UNIVERSITY OF VICTORIA

Submission to House of Commons Committee on
Finance (FINA) Pre-Budget Consultations 2020

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Recommendation 1: That the Government of Canada continue its commitment and investment in university research on climate science and support researchers to better contribute to taking action on climate change. Decisions must be based on scientific evidence, which requires Canada to be a world-leader in funding science that helps protect future generations.

Recommendation 2: That the Government of Canada invest in a renewed Post-Secondary Institutions Infrastructure fund aimed at supporting projects that put our university campuses at the forefront of carbon neutral operations and research, such as a new biofuel energy plant that brings UVic closer to a truly “carbon-neutral” campus.

Introduction

The University of Victoria (UVic) is one of Canada’s premier research and teaching universities. UVic is home to more than 22,000 students who are deeply committed to contributing to a better future for people, places and the planet. We are fortunate to have a great number of factors that contribute to our successes, including talented and dedicated faculty; energetic and inquisitive graduate and undergraduate students; the unwavering support of excellent staff; passionate alumni who make a difference every day in their communities; and the enthusiastic engagement of donors and partners.

A recent poll conducted by Abacus Data for Universities Canada revealed that 86% of Canadians believe the government should spend more on university research because of the benefits such research brings to the country. Sustained investment in university research, innovation and infrastructure is vital to the social and economic development and the well-being of all Canadians. The Government of Canada’s support for a comprehensive research ecosystem will prepare the next generation of leaders, researchers and innovators to tackle the biggest challenges facing us today and tomorrow—namely the climate emergency. UVic is a world leader in research on ocean science and technology, climate modelling, climate and adaptation, and the development of innovative clean energy technologies.

University of Victoria’s Response to the Climate Emergency

Canada is facing a challenge, and the swift transition to a low-carbon economy is a pressing concern and significant opportunity. A report by the Global Commission on the Economy and Climate Change found that a global shift to a low-carbon economy between 2018 and 2030 has the potential for a direct economic gain of \$26 trillion (USD) when compared to the status quo. Clean technology activity in Canada continues to grow, and in 2016, environmental and clean technology, excluding waste management and electricity production, accounted for \$26.7 billion of Canada’s GDP and 178,000 jobs.

The Government of Canada’s commitment to the work of climate change and clean growth is through critical strategies such as the Pan Canadian Framework on Clean Growth and Climate Change (PCF). At UVic, we know that our air, water and land are the vital elements of our planet and are fundamental to our future. Knowledge of those three elements—how they are changing, how they are interacting within complex ecosystems and how we interact with them—is essential to understanding our complex and changing world.

Pan-Canadian Framework on Clean Growth and Climate Change (PCF)

Since the PCF's release in 2016, there has been significant progress from federal, provincial and territorial governments towards implementing PCF objectives to support clean technology uptake in Canada and the transition to clean growth. UVic has played a large role in the work to reduce greenhouse gas (GHG) emissions, build resilience to climate change impacts and extreme weather, and enable clean economic growth. Only by working together will Canada meet its 2030 climate change target to reduce GHG emissions by 30% below 2005 levels.

Canada's climate plan is investing almost \$70 billion to reduce GHG emissions, build resilience to a changing climate, and support the transition to a clean growth economy. The PCF's four main pillars outline a well-considered and resolute approach to addressing the most urgent issue of our time. Strategies such as a pricing carbon pollution; measures to further reduce emissions across the economy; adaptation and resilience to the impacts of climate change; and actions to accelerate innovation, support clean technology, and create jobs require significant and unprecedented investment. At UVic, we understand that ensuring the sustainability of our environment will require new and innovative approaches to sustainability in every domain—research, education, community engagement and campus operations. We are committed to being a global leader in environmental sustainability, with a focus on climate adaptation and mitigation and the deployment of clean energy technologies.

Attracting and Fostering Global Talent and Knowledge to Prepare for the Future

UVic faculty and students are committed to collaborative and integrated teaching and research on climate change. We are home to 130 faculty and researchers across 30 program areas who are engaged in climate change research and clean growth innovation. Through this integrated network of internationally recognized climate, energy and oceans researchers, we are developing and deploying critical knowledge needed to inform decisions by communities, governments and industries on climate change and adaptation. Our efforts are connected globally—to a network of other leading researchers and partners—ensuring we have a team of innovative and internationally recognized researchers. UVic is preparing the world for the future.

In 2018, UVic released its Strategic Framework (SF) with six strategic priorities to guide institutional efforts. One of the priorities is to promote sustainable futures, with the goal of being a global leader in environmental, social and institutional sustainability through research, academic programs, campus operations, and the impact and influence of our students, faculty, staff and alumni. The values that guide our SF are built into our institutional culture, including strong commitments to advancing truth and reconciliation with Indigenous peoples, promoting equity, diversity and inclusion, and solving the greatest problems of today and tomorrow. For the purposes of this submission, we will outline two specific recommendations to the House of Commons Committee on Finance for Budget 2020.

First, UVic is focused on building capacity, attracting and supporting talent, fostering knowledge transfer and world-leading research, and developing and evolving educational programs that contribute to sustainability on a global scale. In 2018/19, UVic offered nearly 600 undergraduate and graduate courses that included sustainability themes in various disciplines, including the Department of Geography, School of Earth and Ocean Sciences, School

of Environmental Studies, Peter B. Gustavson School of Business, and Civil Engineering Program, just to name a few.

Our latest achievements connect into the major sustainability issues of our time:

- A pan-Canadian research team of university and government scientists led by Roberta Hamme, a chemical oceanographer at UVic, is investigating the ocean's role in slowing climate change. The research will help Canada measure the absorption of carbon dioxide and predict how it will impact Canada's three oceans.
- UVic's Ocean Networks Canada has the world's most sophisticated undersea monitoring network, offering research that ranges from studying neutrinos entering the deep ocean to predicting earthquakes through changes in the ocean environment. Their work is critical to understanding and maintaining healthy oceans.
- The Pacific Institute for Climate Solutions (PICS), hosted and led by UVic, is a unique collaboration among BC's four research-intensive universities that harnesses BC's intellectual resources to develop climate change solutions, seeking new knowledge on decreasing GHG emissions, adapting to the changing climate, and realizing a vibrant low-carbon economy.
- The Pacific Climate Impacts Consortium (PCIC) is a regional climate service centre that conducts quantitative studies on the impacts of climate change and climate variability in the Pacific and Yukon regions. The Government of Canada's new Canadian Centre for Climate Services and the PCIC are empowering scientists to share their expertise and help Canadians plan for the impacts of climate change.
- UVic's Institute for Integrated Energy Systems (IESVic) is an international leader in research on sustainable engineering solutions, including fuel cells; energy efficiency; alternative energy sources; and large-scale, long-term analysis of how policy and technology can work together. Canada and the world need a road map to a different energy future. Projects such as PRIMED at UVic work to assist remote, off-grid, northern and Indigenous communities reduce diesel use and develop renewable energy solutions.
- UVic entrepreneur and mechanical engineer Devesh Bharadwaj founded Pani Energy Inc. in March 2017, with the goal of developing osmotic energy storage as an affordable energy solution to the world through affordable technologies that reduce emissions and costs. As a UVic undergraduate student, he investigated how to harness clean energy by mixing saltwater and fresh water.

All of these projects demonstrate the value of UVic's collaborations with all levels of government, federal funding agencies, national and international industry partners and NGOs to bring forward world-leading research and academic programs in emission reduction. Continued and expanded investment is needed to sustain and grow these partnerships and to invest in applying new technologies to reduce climate impact.

Recommendation 1: That the Government of Canada continue its commitment and investment in university research on climate science and support researchers to better contribute to taking action on climate change. Decisions must be based on scientific evidence, which requires Canada to be a world-leader in funding science that helps protect future generations.

Second, UVic seeks to renew and extend our commitment to campus development and operations that meet the highest standards of sustainability. A university campus should be a best practices model in the transition to the low-carbon economy. To respond to the urgent call for action, UVic is implementing aggressive carbon reduction strategies, including plans for a self-funded (UVic) \$200 million Passive House project (possibly Canada's largest passive house project to date) as well as the development of a complete multi-modal transportation system. We cannot achieve these ambitious goals alone. They require consultation, investment and collaboration with many partners.

UVic's new multi-modal transportation system will ensure sustainable, safe and carbon neutral mobility for UVic's 22,000 students and 5,000 faculty and staff. UVic serves as a small municipality with the capacity to respond effectively to the challenge of climate change. Federal infrastructure investment would help fund a comprehensive low-carbon mobility strategy: a complete EV charging plan for campus; a cycling plan; development of additional end of trip facilities and improvements to transit services. A fully modernized transportation system at UVic makes good sense for people, places and the planet. Government investment in universities is essential to help respond to the climate emergency, and continued investment in university infrastructure ensures Canada is at the forefront of climate science and research and the transition to a climate smart economy.

To further advance our efforts, we propose to design, construct and operationalize a biofuel-based energy plant on campus. This energy plant, estimated at \$30 million, will comprise a hot water boiler system and a one Megawatt Organic Rankine Cycle electricity generator housed in a LEED Gold certified building. When completed, this new plant will operate in tandem with the university's existing energy plant. The goal is to have the plant become the primary energy source for the campus district heating system, in perfect alignment of the PCF goals. The completion of this project would bring the university closer to operating a truly "carbon neutral" district heating system.

Recommendation 2: That the Government of Canada invest in a renewed Post Secondary Institutions Infrastructure fund aimed at supporting projects that put our university campuses at the forefront of carbon neutral operations and research, such as a new biofuel energy plant that brings UVic closer to a truly "carbon-neutral" campus.

In closing, we at UVic are proud of our people and the work they do. We are grateful for the partnership we have with the Government of Canada and will continue to look for opportunities to collaborate to address the urgent issues of climate change. UVic will ensure that our students have opportunities to engage with issues, principles and practices that support social and environmental sustainability, and to develop the knowledge and ethical orientation to contribute to a just, socially responsible and sustainable future. We are continually striving to extend our expertise and leadership in experiential, dynamic learning and supporting the Canadian economy by driving Canadian research and prosperity, working to enable the critical innovations that will fuel Canada's low-carbon future.