

# 2022 PSO CLIMATE CHANGE ACCOUNTABILITY REPORT

Capilano University

**Capilano University is honored to be  
part of the North Shore community,  
and acknowledges with respect the  
Lil'wat, Musqueam, Sechelt,  
Squamish, and Tsleil-Waututh First  
Nations on whose unceded traditional  
territories we live, learn and work.**

# DECLARATION

This Climate Change Accountability Report for the period January 1, 2022 to December 31, 2022 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2022 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2023 and beyond.

By June 30, 2023, Capilano University's final 2022 Climate Change Accountability Report will be posted to our website at [www.capilanou.ca](http://www.capilanou.ca).

# EMISSIONS & OFFSETS

<b>Capilano University 2022 GHG Emissions and Offsets</b>	
<b>GHG Emissions created in Calendar Year 2022</b>	
Total Emissions (tCO <sub>2</sub> e)	<b>1380</b>
Total BioCO <sub>2</sub>	<b>0.90</b>
Total Offsets (tCO <sub>2</sub> e)	<b>1381</b>
<b>Adjustments to Offset Required GHG Emissions Reported in Prior Years</b>	
Total Offsets Adjustment (tCO <sub>2</sub> e)	<b>0</b>
<b>Grand Total Offsets for the 2022 Reporting Year</b>	
Grand Total Offsets (tCO <sub>2</sub> e) to be Retired for 2022 Reporting Year	<b>1380</b>
Offset Investment (\$25 per tCO <sub>2</sub> e)	<b>\$36,225.00</b>

# RETIREMENT OF OFFSETS

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, Capilano University (**the Organization**) is responsible for arranging for the retirement of the offset's obligation reported above for the 2022 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (**the Ministry**) ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

**Executive sign-off:**



May 30, 2023

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Signature

Date

Ryan Blades

AVP, Facilities and Campus Planning

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Name (please print)

Title

# OVERVIEW

## ENVISIONING 2030

Capilano University (CapU) is at the centre of a convergence of opportunities to lead and thrive. In a world of accelerating change, evolving learner demographics, new pathways, needs and aspirations, unique challenges are being introduced. With unprecedented technologies, shifting economic complexities, global population growth and more diverse societies, CapU must become increasingly agile to continue in its relevance and purpose.

## OUR COMMITMENT

CapU is accountable to our community; our commitment to and demonstration of environmental stewardship is an example for others within our community. Our mission statement emphasizes our commitment to the 'establishment of policies and procedures that reflect the best standards of environmental stewardship'.

Our daily business practices reinforce our commitment to managing our resources for the benefit of present and future generations. CapU will strive to become a model environmentally responsible institution and will actively promote environmentally sustainable behaviours among our students, staff, faculty, administration, and the broader community that is CapU.

## END OF THE PANDEMIC

As the pandemic hopefully winds down, operations and content delivery have shifted back to pre-COVID status. Enrollment has seen a positive gain which may release some additional funds for fiscal year 2023. CapU will then be able to re-engage some of our smaller Energy Conservation Measures (ECM). These projects would potentially cover topics such as lighting controls upgrades, Low Carbon Emissions (LCE) projects on-hold, and advanced ventilation controls.

## THE COMMITTEE CONVENES

The Sustainability Committee's decision-making hopes to provide an effective method for developing a community approach to problem solving, in ensuring representation of all stakeholders' views, and in building networks across the organizational units of the University. The committee understands that its influence on decision-making processes could allow the organization to respond quickly to a more complex and an ever-changing environment profile.

A Sub-committee of relevant stakeholders completed the first reporting for Operations in the Sustainability Tracking, Assessment & Rating System (STARS) program. This initial pilot project is being reviewed and refined to provide a template campus wide on how all other business units and unique groups in our organization can complete the reporting.

# ELECTRIFIED

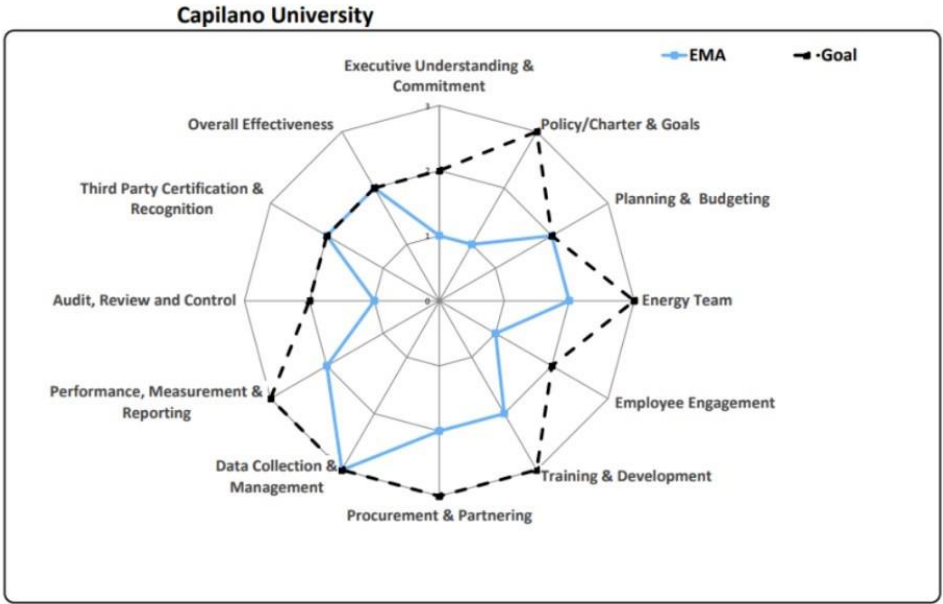
The electrification project for the campus is moving forward. This project will allow CapU to be a leader in the new sustainable low carbon economy while providing community leadership. Conservation efforts will be able to utilize the upgrade in service.

The Federal Government has incentivized electrification for organizations with a program called the CleanBC Facilities Electrification Fund. The goal of the program is to switch from fossil fuels as an organization’s primary energy source. CapU collaborated with BC Hydro and has submitted the application for this program. This application identifies a 3–5-year electrification program for the University to utilize the upgrade in service for major capital projects.

This project, however, has seen some significant delays in equipment procurement. Lead times on some of the required kiosk transfer switches has climbed 200%. With electrification as the next leading factor for the University to approach Energy Management, this will put a minor roadblock for significant emissions savings.

# ASSESSMENT IMPLEMENTATION

To assist CapU to optimize energy management, BC Hydro Power sponsored participation in the Energy Management Assessment (EMA) Workshop during FY 2022. The goal was to develop and implement a long-term Strategic Energy Management Plan (SEMP). The following image shows the results of the assessment.



As a result of the latest EMA workshop session with the CU management team, it is recommended that initial efforts focus on the following areas to improve energy management business practices:

- *Vision & Policy:* Old Policies to be updated.

- *Scope & Charter:* Establish a program charter that summarizes key elements of the energy management initiative by defining the business case, scope, and overarching objectives.
- *Objectives & Target-Setting:* Set comprehensive energy management targets that account for both capital projects and non-capital activities, preferably based on energy intensity.
- *Planning & Strategy:* Develop a comprehensive, multi-year SEMP that correlates potential energy savings from capital projects, operational opportunities, and behavioral initiatives to energy consumption reduction targets.
- *Financial Decision-Making:* Engage capital planning decision-makers to better understand project valuation approaches and establish preferred formats for business case submittals.

## ACTIONS

The following actions were taken at CapU campuses in 2022 to minimize GHG emissions:

### PANDEMIC RE-COMMISSIONING RESULTS:

- For the years 2020 and 2021, the operations of CapU campuses were reduced due to COVID. To properly define our goals and prove our internal Recommissioning projects were a success, the following table shows the consumption of our “Managed Buildings” for the year 2022 vs 2019.
- During the years 2020 & 2021 we focused internally on resetting systems to their base settings, this involved hundreds of VAV and 50 plus Air Handling Units. The following table shows the results of our interna efforts when comparing the return to normal operations to our last previous full year of operations.

FUEL	Q	2022	2019	Comparisons	Reduction	Savings	Actual CUSUM
kWh	Q1	1,345,044	1,474,194	-129,150	8.7%	\$11,425	\$11,425
	Q2	1,211,217	1,335,236	-124,019	9.28%	\$11,417	\$22,842
	Q3	1,322,627	1,345,151	-22,524	1.6%	\$2,083	\$24,925
	Q4	1,314,240	1,458,500	-144,260	9.89%	\$12,876	<b>\$37,801</b>
	TOTAL	5,526,842	5,981,580	-419,952	7.4%	\$37,801	

### ADVANCED VENTILATION MONITORING FOR A CHANGING CLIMATE – PILOT PROJECT SCHEDULED FOR 2023

- The past few years have seen an increase in smoke and particulates increase in ventilation systems.
- Pilot project to assess the ability of building automation controls the ability to adjust ventilation during these extreme climate issues.
- Project scheduled for 2023 – Q1. Pilot project running prior to the summer smoke season.

### THE SUSTAINABILITY TRACKING, ASSESMENT & RATING SYSTEM (STARS):

- Operations section – Initial project completed.
- Review and procedures being developed for the remaining sections.

## **CAPU CONSTRUCTION PROJECTS:**

- LEED Gold Status
- BC Energy Step Code 4

### *Student Housing Project:*

- Proposal to develop an area of land bounded by Tantalus Road to the North and West, and Monashee Drive to the East (North Vancouver).
- On-campus housing for 362 students.
- Wood First: Mass Timber incorporated in the gathering area of the dining hall (exposed beams) and wood frame on five upper residential floors.
- CleanBC: Targeting Step 4 of the BC Energy Step Code, indicating an expected *GHG emissions reduction of 86 per cent* over a baseline of LEED® Gold with natural gas.
- Gates completed:
  - 70% Design complete
  - District consultation continuing

### *Center for Childhood Studies:*

- 74 new childcare spaces (24 infants and toddlers and 50 preschooler spaces), doubling on-campus childcare for infants and preschoolers, creating a total of 143 childcare spaces on the main campus.
- New purpose-built studio space, study and research labs, classroom, faculty offices and student study areas for the ECCE programs.
- CleanBC: Targeting Step 4 of the BC Energy Step Code, indicating an expected *GHG emissions reduction of 86 per cent* over a baseline of LEED® Gold with natural gas.
- Gates completed:
  - Existing building prepared for demolition
  - Permit for demolition scheduled for Q2 - 2023

### *Squamish Campus:*

- 4 level multi-Purpose building in the new subdistrict in Squamish
- Initial design is for Net Zero building standards
- Gates completed:
  - Initial consultation with all internal stakeholders.

## **CONTINUATION - UPGRADE HIGH VOLTAGE ELECTRICAL SUPPLY:**

- As noted above, there could be some significant procurement delays.
- North Vancouver Campus - Electrification
- Increase in load of 4.3MW.
- Facilitate load growth with a new feeder circuit (4.3km) from substation.
- New Vista Switch location required on site.
- Gates Completed:
  - Design phase from BC Hydro



- Procurement of switching equipment (lead times are approx. 60 weeks – due to multiple global issues)
- Completed Federal application for rebate-based projects to be started upon the completion of the upgrade.

**RETROFIT PROJECTS:**

*BC Hydro: Continuous Optimization (COp)*

- Round 2 – Birch Building. Our largest and most intense energy-using building underwent round 2 for COp. This review ensures that previous ECM's are still being maintained while identifying new opportunities. The results provided approximately 65,000 kWh in savings.

# CONTINUING TO REDUCE EMISSIONS

## **Electrification:**

By moving forward with the electrification upgrade of the North Vancouver Campus, it will provide the key strategy for reducing emissions of space heating during the shoulder seasons. For each building electrified, 65-75% reductions above and beyond the approximately 48% reduction already achieved through conservation is possible. Fortuitously, this strategy also adds cooling, which will prevent buildings from succumbing to climate change during the few periods when extreme weather overlaps with Fall and Summer academic sessions.

Electrification project definition:

- Short Term:
  - Ventilation Re-Re with VRF or HRU Systems and
  - DHW Re-Re with CO2 or ASHP
- Long Term:
  - Heating Plant – Electrification

## **Sustainability Committee:**

With the creation of the Sustainability Committee, increased stakeholder engagement activity is expected. Previously, sustainable efforts were driven solely by the Facilities department, which primarily focused on operations. With the board, we expect to have more creative ideas, changes in behavior, policies and campus-wide acceptance when pushing projects forward.

## **Campus Energy and Emissions Plan:**

In 2020, University developed a draft 10-year Campus Energy and Emissions Plan (CEEP), that focused on policy renewal, future infrastructure growth, energy supply and electrification opportunities. The plan aims to achieve and maintain a 50% reduction from our 2007 baseline emissions through 2030, despite planned growth of enrollment and infrastructure. The plan is currently undergoing internal review and revision, but Cap U will continue to meet and exceed provincial goals and requirements related to reducing emissions.

## **NV Campus – DHW – CO2 Heatpump Upgrade:**

Our Sechelt Campus installed a CO2 Heatpump for Domestic Hot Water in 2019. This unit has been effective and efficiently running with no issues. A study was conducted on continuing the upgrade across the entire NV campus.

## **NV BlueShore Theatre – Lighting and Controls Upgrade:**

Our performance Theatre has developed a plan for moving forward with a LED lighting and controls system upgrade.

**CAPU MAIN CAMPUS**  
2055 Purcell Way  
North Vancouver, B.C.  
Canada V7J 3H5  
Tel: 604 986 1911

**[CAPILANOU.CA](http://CAPILANOU.CA)**

@capilanoU

