Carbon Neutral

2023 PUBLIC SECTOR ORGANIZATION CLIMATE CHANGE ACCOUNTABILITY REPORT (PSO CCAR)

Kwantlen Polytechnic University
2023 PSO Climate Change Accountability Report

PART 1. Legislative Reporting Requirements

Declaration statement: This PSO Climate Change Accountability Report for the period January 1, 2023 to December 31, 2023 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2023 to minimize our GHG emissions, and our plans to continue reducing emissions in 2024 and beyond.

Emission Reductions: Actions & Plans

A. Stationary Sources (e.g. buildings, power generation)

Refrigerant Audit:
An exhaustive audit of all refrigerant-containing HVAC and other equipment across KPU's five campuses was completed to identify all University-owned refrigerant sources. This was reported out in the **Public Sector Refrigerants Equipment Survey**; and followed up by our participation in a CN pilot project where we tested two different reporting methodologies for gathering refrigerant data and provided feedback about our collection experiences. Our input will shape the development of future public sector refrigerants equipment audits.

RNG Study:
This RNG study provided a comprehensive analysis of Renewable Natural Gas (RNG) as a large-scale low-carbon replacement for Natural Gas at KPU. This included 1. industry information and an overview of the current marketplace opportunities for Renewable Natural Gas, and 2. its alignment with British Columbia's current and future provincial mandates on natural gas supply and a marketplace observation of current participants. Started in 2022, and completed in 2023.

Low Carbon Feasibility Study:
This study identified and evaluated practical technical solutions to reduce carbon emissions for each campus with a primary focus on heating systems. It included a

comprehensive assessment and subsequent recommendation of viable energy management, infrastructure and technology, and identified partnership opportunities unique to each site's operational needs. We examined a full spectrum of options and recommended those deemed most viable and informed by smaller sub-studies previously completed or underway currently. Started in 2022, and completed in 2023.

Electrical Load Growth Study:
Built off of a previous electrical capacity study conducted for all campuses, this study developed a future electrical capacity forecast for each site based on predicted electrification needs, including potential mechanical system electrification, EV chargers and future buildings. Started in 2022, and completed in 2023.

Richmond Main Renovation:
The south east portions of the second and third floors of this building, with a total of 3,300m^2, was refreshed to accommodate the new Entertainment Arts program and future technology-based programs. The project, with a $6M budget, included extensive upgrades to the spaces' zone occupancy and CO2 sensors; in preparation for the entire building's HVAC controls to be replaced in 2024-2026.

Richmond Campus – Building Management System (BMS) Replacement:
The existing BMS system (ca. 1992) is obsolete and will be replaced with a new enhanced system that will reduce energy consumption and associated carbon emissions. This $2.5 M project is funded in partnership with FortisBC. Additional zone occupancy and CO2 sensors will be added while optimizing control strategies wherever possible and practical. The existing system will be expanded to independently control some areas of the building such as stairwells and main entrances, while enhancing and optimizing the atrium ventilation control to increase free cooling in the shoulder and summer seasons. Design work wrapped up in 2023, with contractor selection to occur in mid-2024.

Richmond Campus Main Building, Roof Replacement:
An end-of-life entire roof replacement, including mechanical room roofs, was completed. This two-year project was worth $1.2 million and the new design consisted of pale grey, insulated concrete tiles, to help reduce seasonal heat and cooling losses through the roof structure.

Langley Campus Horticulture Shop, Heating Upgrade:
The gas-fired heating system at the Langley Horticulture shop was replaced with electrical box heaters and ceramic heat panels. This provides exceptional heating while reducing carbon emissions.

Langley Campus, Institute for Sustainable Horticulture (ISH) Research Lab, Rooftop Chiller Installation:
A 20-ton air-cooled rooftop chiller replaced the existing chiller at the end of its service life. This higher-capacity cooling system has redundancy through dual compressors that can maintain continuous cooling in the event one compressor fails and provides greater efficiency than running the larger main campus chiller to keep up with research required cooling needs during shoulder seasons for this lab space. The new chiller provides cooling to the ISH Lab insect rearing, viral and fungal inoculation areas, supporting Integrated Pest Management research, using predatory insects.

Surrey Campus Main Electrical Vault
KPU's Surrey campus is our oldest site and has seen the largest footprint growth over the past 3 decades. The main electrical vault is undergoing a transformer replacement, effectively doubling its current capacity. This critical capacity increase will support future GHG emission reductions through heating plant electrification, consideration for fleet EV charging stations and future building operations. Current site electrical capacity impedes these opportunities. The design phase of this project began in 2023 and completion is targeted for 2024/2025.

B. Mobile Sources (e.g. fleet vehicles, off-road/portable equipment)

In 2023, KPU purchased one additional fleet vehicle. Unfortunately, due to our single year budgeting model, post-pandemic supply chain delays, and lack of fleet vehicle charging stations on campuses, a zero-emissions vehicle was not deemed practical for this acquisition.

Overall, KPU has a small fleet of newer vehicles, which are well maintained and incur limited mileage annually, due to our campus' close proximity to each other. Of these, two are traditional fleet vehicles; the others are purpose use only and will not reach end-of-life for ten or more years. KPU had a funding request for a full EV (Ford E-transit van was considered) for 2024 but this was not funded.

The KPU Faculty of Trades & Technology has a budget request for an EV for 2024 to be shared between the Automotive Technology Program and for external events and will include limited charging infrastructure within their shop space. This is expected to be funded.

C. Paper Consumption

KPU continued the long tradition of using non-wood fiber papers (specifically Sugarsheet – a sugar cane fiber-based product) for campus printers and copiers in 2023. KPU has purchasing policies on both recycled content and FSC certified sources.
To reduce paper use, all copiers and printers on campus are defaulted to double sided and we continue to increase online services for marketing and advertisement, presentations and meetings instead of print resources. Documents throughout our operations have been converted to electronic storage systems, wherever possible. Used papers are recycled at the end of life. KPU's IT department continues to employ a PaperCut Software technology that requires users to release a print job (showing estimated costs) before printing it; this software has historically reduced paper consumption from premature or accidental print release of unfinished documents.

2023 GHG Emissions and Offsets Summary Table

Kwantlen Polytechnic University 2023 GHG Emissions and Offsets Summary	
GHG emissions for the period January 1 - December 31, 2023	
Total BioCO_2 (tCO_2e)	*1.28*
Total Emissions (tCO_2e)	*2459*
Total Offsets (tCO_2e)	*2458*
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO_2e)	*.041049*
Grand Total Offsets for the 2023 Reporting Year	
Grand Total Offsets to be Retired for 2023 Reporting Year (tCO_2e)	*2458*
Offset Investment ($)	*$61,450*

Retirement of Offsets:

In accordance with the requirements of the *Climate Change Accountability Act* and the Carbon Neutral Government Regulation, Kwantlen Polytechnic University (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2023 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.

PART 2. Public Sector Climate Leadership

2A. Climate Risk Management

Vision 2026 Strategic Plan Goals:
Following on the successes of Vision 2023, KPU's 3-year strategic plan through 2026 continues to apply our goal of "sustainability through our offerings, research and operations", to decision-making processes across the University.

Climate Adaptation:
KPU commissioned Introba to develop a **Preliminary Climate Adaptation Strategy** and completed a **Site Exposure Assessment** of each campus. A "Table of Key Opportunities" was developed and divided into actions for adapting to climate change for buildings and operations; people; grounds and natural infrastructure; transportation, parking and mobility; utilities and infrastructure; and services and programs. This document will help guide KPU's climate adaptation decisions in the coming years.

STARS:
KPU began the process for submitting our Sustainability Tracking Assessment and Rating System (STARS)* application in 2023, allowing us to benchmark our sustainability practices internationally - establishing a baseline of sustainability performance and tracking progress of strategic initiatives as they are implemented. This provided opportunities to gain international recognition of our efforts and collaborate with other post-secondary institutions. The data collection process was completed and the comprehensive internal review began in 2023.

In 2024, the internal review will wrap up and an external review (by our peer institution, BCIT) will be undertaken; the final step will be to incorporate the peer-suggested changes and submission for a STARS rating in mid-2024.

*Sustainability Tracking Assessment and Rating System (STARS), a transparent, self-reporting framework used by universities across Canada and the world to measure sustainability performance.

Climate Strategy Lead:
KPU identified the need to appoint a climate strategy lead and established a budget for this to start in the 2024/2025 FY. The position will be tasked with creating KPU's Climate Strategy to complement Campus and Community Planning's sustainability work, the Climate+ Challenge and KPU's efforts to meet United Nation's Sustainable Development Goals.

In spring 2024, KPU appointed Dr. Brett Favaro to this role, effective September 2024. Dr Favaro is currently KPU's Dean of Science and Horticulture; bringing to the position more than a decade of experience as a science researcher and educator, working with academia and industry to support conservation, fisheries and climate action.

2B. Other Sustainability Initiatives

Composting Paper Towels, KPU Washrooms:
Aligning with KPU's commitment to sustainability across all five campuses, discarded paper towels used in all KPU washrooms are being composted through our green waste collection stream (joining with our food service, landscape, spent grains from brewing and horse manure waste.) Based on 2022 data, this initiative is estimated to redirect 6217kg of discarded paper towels and 25,000 garbage bags annually from local landfills. Organic materials collected from KPU are taken to a local facility, where the material is broken down into contaminate-free, nutrient-rich compost or composted on site. Note that this initiative compliments the existing washroom air dryers.

Bottle Fillers:
Facilities, in partnership with the Kwantlen Student Association, completed the installation of 15 new bottle filling/water fountains stations throughout the Surrey, Langley, Tech, and Richmond campuses, promoting the drinking of filtered tap water and significantly reducing the number of plastic water bottles sold or consumed on KPU campuses.

Drought Response:
Due to the unprecedented and prolonged drought over the summer, Facilities Services implemented the following mitigation strategies to safeguard our buildings and the KPU community from fire risks and conserve water:

- Erected fencing around the central forest at the Surrey campus
- Removed high-risk ignitable materials from the forest and around the perimeter of all buildings
- Conducted daily site checks for potential fire risks
- Erected signage regarding safely disposing of smoking materials on campus
- Turned off water features/ponds to conserve water
- Paused exterior maintenance activities such as pressure washing and window cleaning

2C. Success Stories

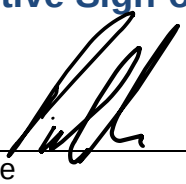
United Nations, Sustainable Development Goals:
College and Institutes Canada (CICan) award nominee

Through the 2022/2023 academic year, KPU launched the SDG Mapping Project to weave the United Nations' 17 Sustainable Development Goals (SDGs) into our core values. The process involved an in-depth analysis of KPU's academic offerings, research activities, and administrative practices. It identified gaps in our current approach, leading to the development of actionable strategies to strengthen our commitment to the SDGs and serving as a benchmark for measuring KPU's contributions towards global sustainability efforts. KPU has also signed the SDG Accord which is reshaping our curriculum, fostering learners to be academically, socially, and environmentally conscious.

Select faculty members have been appointed as SDG Champions, furthering SDG integration into student learning. KPU participated in SDG Week and World Congress 2023, key events for promoting sustainable development goals across our community and recently created the Sustainability Hub – a platform for the KPU community to meet and collaboratively focus on tangible, inspiring projects demonstrating sustainability in the polytechnic setting.

Nationally, KPU is recognized as a leader in sustainability within Canadian higher education. Our SDG commitment has boosted this reputation. The SDG Mapping Project, highlighted in the Sustainable Development Solutions Network's publication "Reporting on the SDGs: A guide for Canada's universities and colleges", exemplifies our influence beyond our community, contributing to Canada's progress toward the SDGs. KPU was nominated for a 2024 CICan award.

Executive Sign-off:



Signature	May 28 2024 Date
Peter Smailes Name (please print)	Vice President, Administration Title