

**SFU**

SIMON FRASER  
UNIVERSITY

**SIMON FRASER UNIVERSITY**  
2023 PSO CLIMATE CHANGE  
ACCOUNTABILITY REPORT

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# 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.

## Overview

In 2023, Simon Fraser University's (SFU) total GHG emissions were 10,382 tCO<sub>2</sub>e, 46 per cent reduction from the 2007 baseline. These emissions include 894 tCO<sub>2</sub>e due to a refrigerant leak plus 226 tCO<sub>2</sub>e of routine refrigerant refills. Excluding the refrigerant portion, SFU's emissions stand at 9,262 tCO<sub>2</sub>e, demonstrating a continued downward trend compared to preceding years. The reduction in emissions realized in 2023 is a result of our continued efforts to optimize energy consumption and transition to renewable sources of energy.

Key milestones and actions taken in 2023 to minimize emissions include:

- Energy conservation projects that include various chiller and lighting upgrades across SFU's three campuses

- Building capacity and awareness among students regarding energy efficiency
- Renewable energy procurement for various buildings on the Burnaby campus
- Minimizing reliance on natural gas boilers by utilizing heating from Corix biomass plan
- Adding EVs and Hybrid EVs in SFU's fleet

## Emission Reductions: Action & Plans

SFU has developed a 5-year [Strategic Energy Management Plan \(SEMP\)](#) with actions to implement at old and new buildings throughout all campuses. The plan supports the University Energy Utilization Policy (GP 43) and the [2022-2025 Strategic Sustainability and Climate Action Plan](#) with the following targets:

- Reduce operational GHG emissions (scope 1, scope 2 and limited scope 3 [exclusively paper purchased]) by 50 percent from 2007 by 2025
- Shift 50 per cent of the fossil-fuel based energy used by SFU to renewables by 2025
- Reduce electricity and thermal energy by 1 GWh and 5,000 GJ through energy saving initiatives

The main categories are split into energy conservation, low carbon electrification, renewable energy and district energy modernization.

## **a) Stationary Sources (e.g., buildings & power generation)**

### **Energy conservation**

SFU has committed to recommissioning five buildings per year to ensure safe and proper operations of building systems. These improvements also allow us to improve energy efficiency. SFU and Corix are working on load shifting of heating demand by scheduling major systems to activate in stages. Allowing the heating system to provide the same amount of energy over a longer period reduces strain on energy generation and distribution.

West Mall Centre completed a chiller upgrade, replacing the previously oversized unit that used R-22 refrigerant with a more modern and efficient version. This new chiller uses a refrigerant with a lower GHG factor and requires significantly less water, which results in less time, costs and chemicals for treatment.

An additional retrofit at West Mall Centre involved upgrading the building envelope by improving the sealants around all the north-facing windows to reduce air leakage, and installing solar shades to effectively reduce glare and heat gains.

Lighting upgrades at Residence C (Barbara Rae) and Residence D (Pauline Jewett) ensure all shared spaces are appropriately lit while also reducing maintenance needs and energy consumption. Lighting upgrades in Discovery 1 have been completed and upgrades at the 9000 level of the Education Building and at Robert C. Brown Hall are expected to save 196,000 kWh/year. This project involved the physical replacement of fixtures to

LED and integrating network lighting controls to enable digital operations.

Exterior lighting at Shrum Science courtyards was replaced with LED street lamps and bollards to provide a more reliable light source. While the south wing of the Applied Sciences Building was undergoing renovations, the remaining portion of the building underwent a lighting upgrade.

### **Fume hood upgrade**

SFU optimized the fume hoods at the Shrum Chemistry, TASC 1, and TASC 2 laboratories. These projects were featured in a presentation delivered by the Energy Management team during the Sustainable Labs Canada (SLCan) Conference. While technical details were a common theme for all presenters, SFU included the human aspects of the initiative.

These upgrades included consistent outreach to lab users, especially during pre-construction phase. The communications were relayed via email, in-person presentations during students' coffee breaks, and in print. Variable frequency drives were added to the exhaust fans servicing these fume hoods to adjust the motor speed based on the height of the sash. Previously, the motor would only operate on maximum speed and now it gradually ramps up only as needed. These safety improvements ensure that toxic fumes are exhausted out of the lab while reducing the wind turbulence within the fume hood. The energy savings from slowing down the fans is a secondary benefit.

Facilities Services staff created a survey for students to provide comments or questions about the fume hood upgrades and take an online pledge to adhere to the new procedures to ensure lab safety and energy efficiency. Completing these tasks enrolled them into a contest to win a \$20 gift card to the SFU Bookstore. Most of the students provided comments that supported the implementation and noted that the upgrades, which improved safety and energy efficiency, did not interfere with their work.

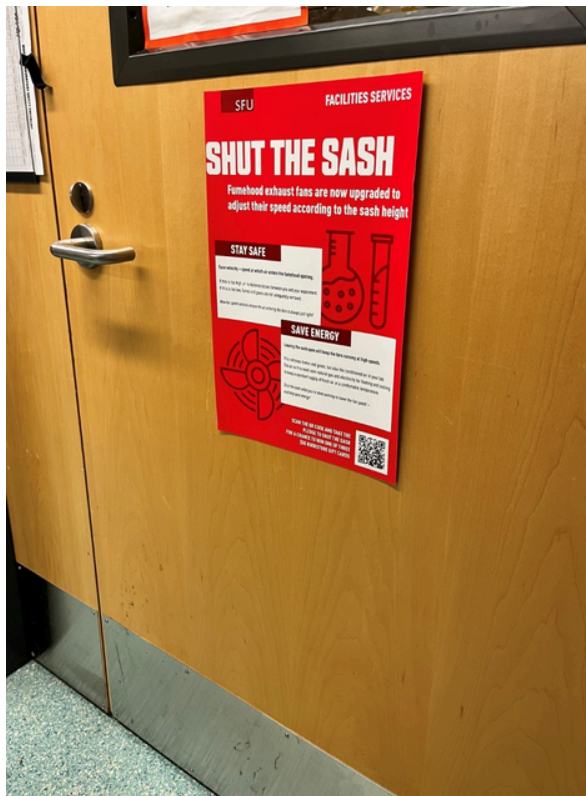


Figure 1 - Large posters posted on the door as a final reminder for lab occupants leave the space to “shut the sash” before leaving for the day.

Continuous optimization at Maggie Benston Centre (MBC), Saywell Hall (SWH), and Strand Hall (SH) improves programming of BAS to ensure the heating, ventilation and air conditioning (HVAC) systems are functioning at peak efficiency.

### Low carbon electrification

The recent renovation of the Diamond Alumni Centre (DAC) included a significant overhaul, notably the electrification of heating systems. The entire HVAC system was replaced to improve energy efficiency while providing more reliable occupant comfort.

In line with our commitment to sustainability, SFU has initiated a comprehensive decarbonization plan aimed at identifying key areas for emission reductions. This plan establishes a clear timeline to prioritize projects and assigns actionable tasks to various departments, fostering accountability and a collective responsibility towards achieving net zero emissions by 2050.

Furthermore, the Facilities Services team has completed an initial decarbonization study and is actively pursuing further building-specific assessments in 2024, demonstrating our proactive approach towards carbon neutrality.

## Renewable energy

SFU's commitment to sustainability extends to its energy procurement strategies across campuses. For instance, the Discovery 2 building on the Burnaby campus benefits from an ongoing contract with FortisBC, ensuring its energy supply is entirely sourced from renewable natural gas (RNG) produced locally through biomethane capture initiatives at nearby farms, landfills, and municipalities. Meanwhile, on the Vancouver campus, six buildings are currently powered by steam provided by [Creative Energy](#). SFU has actively advocated for Creative Energy to transition towards low-carbon fuel options. While the long term plan involves transitioning entirely to low-carbon sources, the current initiative is a partial decarbonization. Initially, this involves the addition of electric boilers, with the remainder of the infrastructure continuing to utilize natural gas for the foreseeable future. Future phases will modernize downtown Vancouver's heating infrastructure by fully transitioning away from fossil fuels over the next decade.

Similarly, at the Surrey campus, two buildings are connected to the city's district energy system. SFU has been at the forefront of advocating for the decarbonization of the West Village Energy Centre, which historically operated on natural gas. As of 2021, 60 per cent of the energy supplied to SFU from this facility came from renewable natural gas provided by the Surrey Biofuel Facility. SFU remains committed to supporting Surrey City Energy in its efforts to integrate additional low-carbon resources, such as sewer waste heat recovery, into its energy infrastructure.

## District energy

SFU remains steadfast in its commitment to enhancing the sustainability of the Burnaby Mountain District Energy Utility (BMDEU) while actively engaging in discussions with Corix to mitigate greenhouse gas emissions associated with biomass utilization.

Collaborative efforts with Corix also extend to implementing load shifting strategies for the Burnaby Campus to minimize reliance on natural gas boilers, primarily used for supplemental heating. Achieving optimal efficiency in this endeavor necessitates continuous collaboration and thorough research into the operational dynamics of each building. Furthermore, the recent completion of building envelope renewals at the McTaggart-Cowan Hall townhouses marks another milestone in SFU's sustainable infrastructure development, with plans for its integration into the BMDEU system expected to be realized by Fall 2024.

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

SFU's vehicles and motorized equipment may have a small impact on our overall GHG emissions, however, these vehicles are a highly visible part of SFU's operations and have an impact on local air quality. To align with [SFU's 2022-2025 Strategic Sustainability and Climate Action Plan](#) goals, SFU continued its efforts to expand EV charging facilities and the university's fleet with electric vehicles.

Facilities Services, Parking and Sustainable Mobility Services and Campus Public Safety (CPS) are actively pursuing the adoption of electric vehicles (EVs) for their respective fleets. As part of our contract with Concord Parking, we have required that the entire parking enforcement fleet be EV and Concord has met that requirement for the past 3 years. In 2023, SFU leased seven EVs, including one for CPS and six EVs for Facilities Services. CPS also included two hybrid EVs into their fleet.

## **c) Paper consumption**

Document Solutions, SFU's print and digital services department, is committed to sustainable business practices and reducing waste where possible. The team has worked with suppliers to ensure that their users have the best products possible while reducing their carbon footprint.

The majority of paper used is Forest Stewardship Council (FSC) Certified—or made from recycled materials. Document Solutions encouraged the reuse of old banner stands, repurposed plastic signage, as well as monitoring and tracking their in-plant wastage.



*Figure 2 - SFU has opened our first two accessible EV charging stalls on campus.*

## 2023 GHG Emissions and Offsets Summary Table

<b>Simon Fraser University 2023 GHG Emissions and Offsets Summary</b>	
<b>GHG emissions for the period January 1 - December 31, 2023</b>	
Total BioCO <sub>2</sub>	85.5
Total Emissions (tCO <sub>2</sub> e)	10,382**
Total Offsets (tCO <sub>2</sub> e)	10,297**
<b>Adjustments to Offset Required GHG Emissions Reported in Prior Years</b>	
Total Offsets Adjustment (tCO <sub>2</sub> e)	84.5
<b>Grand Total Offsets for the 2023 Reporting Year</b>	
Grand Total Offsets to be Retired for 2023 Reporting Year (tCO <sub>2</sub> e)	10,382
Offset Investment (\$)	\$259,550

\*\* This includes 894 tCO<sub>2</sub>e due to refrigerant leak plus 226 tCO<sub>2</sub>e related to routine refrigerant refills.

Before 2023, fugitive emissions from refrigerants were not documented since they were anticipated to be less than 1% of annual greenhouse gases (GHGs). In 2023, however, a notable refrigerant leak prompted a comprehensive inventory of fugitive emissions. Consequently, adjustments were made to account for fugitive emissions in 2022, and these emissions were newly reported for 2023. This further scrutiny enhanced both accuracy and transparency.

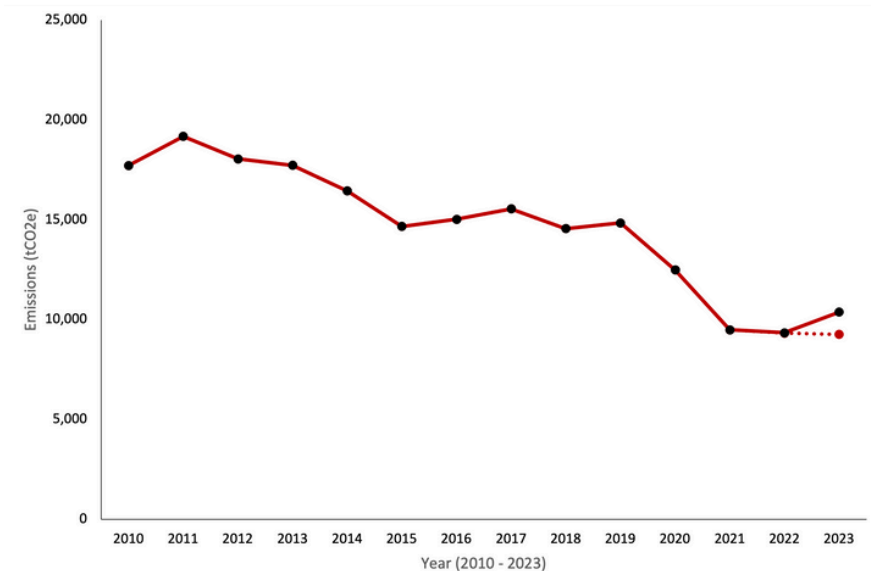


Figure 3 - SFU's GHG emissions 2010-2023. The dotted line represents what SFU's emissions would have been without the refrigerant leak.



## Retirement of Offsets

In accordance with the requirements of the Climate Change Accountability Act and the Carbon Neutral Government Regulation, Simon Fraser 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.



Figure 4 - SFU's Corix biomass plant on Burnaby campus.

## PART 2. PUBLIC SECTOR CLIMATE LEADERSHIP

### Climate Risk Management

SFU undertakes numerous processes to manage its climate risk. Namely, SFU's Enterprise Risk Management (ERM) framework is made up of 12 cross cutting themes that include a dedicated Climate Resilience category. SFU's Safety & Risk Services department provides leadership around strategic and operational risks at the university including coordinating with internal subject matter experts to manage the risk register and track risk mitigation plans and activities. The SFU Sustainability team is the assigned institutional lead for tracking and reporting on the Climate Resilience risk theme within the ERM framework.

In 2020, SFU's first Climate Risk Assessment process began. We developed a cross portfolio steering committee, engaged experienced consultants, and led a 2-year community-wide engagement over 2020 to develop SFU's first Climate Risk Assessment Report (completed in 2021). The report identified projected climate impacts, SFU's vulnerabilities to these impacts (70 unique risks), assigned risk ratings, and posed 80 potential actions. The methodology followed the BC Climate Risk Assessment Framework using a hybrid engagement approach with the IAP2 Public Participation model. SFU measures emissions using the GHG protocol and tracks progress using internal tools. We do not currently have a real-time or comprehensive tracking method for climate resilience progress.

Recognizing the potential for contextual changes since the assessment was conducted amidst the COVID-19 lockdown, SFU Sustainability commenced work with the Vice-President Finance and Administration (VPFA) portfolio in 2023 to verify the report. This process aimed to evaluate changes in vulnerabilities and preparedness to respond to climate impacts. Training workshops were delivered, building upon the Climate Risk Assessment Report to establish next steps for implementing appropriate actions grounded in climate science and local data.

SFU Sustainability collaborated with VPFA departments to develop specific climate resilience actions to be incorporated into the VPFA's Sustainability and Climate Action implementation plan. These actions focus on mitigating further climate warming and progressively integrating climate adaptation efforts. Notable initiatives include the construction of a new Fire Hall on Burnaby Campus in collaboration with City of Burnaby – specialized with equipment to deal with unique wildfire challenges specific to Burnaby Mountain, aerial hazard mapping to identify wildfire risks on the mountain, Community Safety App (SFU Safe) and supportive infrastructure during extreme heat – a collaboration between Safety and Risk Services and Facilities Services.

Planning also extends to community safety measures such as the development of a University-wide All Hazards Plan, Extreme Weather Strategy and the establishment of a Heat Wave Response Committee.

SFU has a history of climate adaptation planning, publishing the [Stormwater Management Strategy](#) in 2017, ongoing Wildfire Management Plans, [Emergency Management and Risk Management policies](#), and sector leadership such as [Action on Climate Team's Low Carbon Resilience](#) framework.

More recently, SFU has undertaken efforts to enhance food security. Some of the food resiliency efforts include:

- Increase local food procurement over 40 per cent
- Launch food security initiatives that serve stakeholder groups across the SFU campus communities in times of need, including: Nourish SFU, 72-hour emergency food reserves, SFU Food Pantry; and [other student and campus community group-led initiatives](#)
- Collaboration on regional and international knowledge mobilization and research on food resiliency
  - Building capacity in British Columbia's Food Service Sector to increase the use of local foods (including culinary training & food forward summit) through [SFU Roots Program](#)
  - Grounding SFU's ongoing food resiliency in Indigenous traditional food knowledge and practice through [Rooted Indigenous Food Program](#)
  - Implement scalable, evidence-based, and locally adapted climate adaptation, mitigation, and resilience solutions in local food systems through [SFU's Action Labs](#)
- [Health and Counselling Services](#) offering Eco-grief/anxiety support for students.

In addition to these actions, we have disclosed relevant climate risks based on the Task Force on Climate-Related Financial Disclosures Framework and revised investment policies inclusive of climate risk considerations. These efforts reflect our commitment to sustainability and resilience in the face of climate-related challenges.

## Other Sustainability Initiatives and Success Stories

Several broader sustainability initiatives are underway at SFU focusing on reducing our overall emissions.

SFU has established a cross-institution strategic planning process for sustainability and climate action. The [current strategic plan](#) covers work across all areas of business. SFU has also launched the [Embedding Sustainability and Climate Action \(ESCA\)](#) Framework which support long term integration of sustainability principles and practices into all of SFU's work and impacts.

### **Sustainable procurement to reduce environmental impact**

Sustainable procurement at SFU is important to the institution's commitment to sustainability and responsible resource management. One of the key strategies that we have implemented to promote [sustainable procurement](#) is incorporating ethical and sustainability standards in our Procurement Policy. As one of Canada's leading universities, we recognize the significant impact our procurement practices can have on the environment, economy and social well-being of our communities.

Taking the learnings from the pandemic, the team now maintains a diverse pool of suppliers, focusing on reducing our joint carbon footprint and working to reduce emissions together. The team has engaged EcoVadis, a global sustainability assessment service, to evaluate our supplier's environmental, ethical and social performance.

### **Keeping devices out of landfills**

Working with Quantum Lifecycle, a local company operating state-of-the-art reuse and recycling systems, SFU IT Services has initiated a plan to [reduce and repurpose](#) all SFU's data-bearing devices, such as computers, cell phones, tablets, and servers (among other equipment).

In the past, devices would generally stay in service for three to five years, depending on their purpose, and then get disposed of. These devices still have a lot of life and value and could be used in other settings, but, to properly set the devices up for reuse, IT Services has collaborated with Quantum to securely erase data so they can then be re-marketed elsewhere.

## Facilities Services mobile work order project

Everyday thousands of work orders are issued for Facilities Services from across the SFU community. Work orders could be anything from ordering a plumber for a flooded washroom to upgrading a lighting panel to more individual requests like ordering recycling bins for a new employee or installing artwork in your office. Fulfilling so many work orders is a multi-step process and, in the past, one of the steps included printing out a piece of paper with work order details to hand to the responsible trades person.

While printing worked in the past, it meant a lot of paper was used to maintain this workflow. As part of the [Mobile Work Order](#) project, trades staff were each given an iPhone or iPad Mini with all the information that was previously collected on the paper work order. This step alone led to a reduction in paper usage by 90 per cent for this critical SFU workflow.

## 'Recyclopedia' launches as online recycling information hub at SFU

The newly launched [SFU Recyclopedia](#) provides guidance on how to dispose of old electronics, coffee cups, batteries, and other items sustainably on or off SFU campuses. With this resource, the community has access to convenient information to determine the most suitable recycling or disposal methods for hundreds of items used in daily education and work, thereby reducing the likelihood of them ending up in local landfills.



*Figure 5 - Trades staff holding mobile work orders - Michael Redhead, carpenter on an iPad and Mark Jones, painter with the previous paper version.*

## Go by Bike Week

[Go by Bike Week](#) is a bi-annual initiative of Hub Cycling that aims both to celebrate cycling and to encourage everyone in Metro Vancouver to give cycling a try.

It is a weeklong behavior change campaign to get more people to cycle more often for commuting purposes. In 2023, the campaign's spring and fall events had pop-up celebration stations across all three SFU campuses, encouraging alternative sustainable transportation across Metro Vancouver.



Figure 6 - An Evolve e-bike on Burnaby campus

## New EV charging hub

A new EV charging hub has been installed to provide additional charging ports for zero-emission vehicles (ZEVs) on our Burnaby campus. Located on the West Parkade 7000 level, this new EV charging hub provides 14 level-two EV charging ports. SFU is also officially the first higher education institution to successfully register for the [EV Fleet Ready program](#) with BC Hydro. This partnership will pursue a detailed feasibility study to plan and develop EV charging infrastructure.

We have opened two new accessible EV charging stalls on campus, a move that will address a major infrastructure gap at the school and within Greater Vancouver. The two spaces, which are reserved for people with accessibility needs, debuted in December 2023 and are open to both the campus community and public. As of December 31, 2023, there are now 22 Level 2 chargers and 62 Level 1 chargers across four parkades.

Additionally, as part of our relationship with MODO Car Sharing, MODO has expanded their presence on campus to include two EVs as part of their Car Sharing fleet for use by the SFU community. These are charging at our Level 1 locations in the West Parkade.

## **E-bike share on Burnaby campus**

In August 2023, thirty [Evolve E-Bikes](#) were made available to ride on Burnaby Mountain 24 hours a day, seven days a week. The electric pedal-assist bikes can be found at nine designated parking zones strategically located across campus, including outside student residences to the west and adjacent the UniverCity neighbourhood to the east.

The service provides the SFU community with an additional mode of sustainable transportation while on campus, in addition to existing services like the campus shuttle. Using the new e-bikes, students living in residence can ride to a grocery store in three minutes instead of a 15-minute walk.

## **SFU accelerates towards decarbonizing its investments**

It is now widely accepted that transitioning to a low-carbon economy is a pressing priority and must play an integral role in shaping investment decisions presently and in the future. At SFU, we remain committed to sustainability, climate action and a better future by taking concrete steps to address climate change. Our inaugural [Carbon Footprint Factsheet](#) details our efforts to reduce the carbon footprint of our investments. The factsheet outlines the university's responsible investing strategy and commitment to reducing carbon intensity by 45 per cent by 2025 (using 2016 as a base year) and targeting full divestment of all endowed and non-endowed funds by 2025.



*Figure 7 - Exterior view of the Academic Quadrangle.*

# EXECUTIVE SIGN-OFF



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**Signature**

**Date**

Dugan O'Neil

VP, Research & Innovation (VPRI)

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**Name**

**Title**



May 9, 2024

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**Signature**

**Date**

Martin Pochurko

VP, Finance & Administration (VPFA)

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**Name**

**Title**