



DOUGLAS COLLEGE

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2020

PSO Climate Change Accountability Report





2020 PSO Climate Change Accountability Report

Executive Summary

One of Douglas College's core values is that we take the long view. We recognize that decisions we make today will have an impact for many decades to come, so we work hard to make ours count. As a significant public sector organization, the College has a responsibility to be environmentally responsible, and to *be seen* to be environmentally responsible, to educate by example, and to help mitigate the effects of global climate change. This report highlights our key actions in 2020 towards these goals.

In addition to the actions highlighted, Douglas College continues to investigate opportunities provided by organizations such as BC Hydro's Power Smart programs, FortisBC, the Public Sector Energy Conservation Agreement (PSECA), Energy Canada (Enercan), and the Ministry of Advanced Education and Skills Training. These relationships provide access to a variety of resources to assist us in the development of a college-wide environmentally sustainable energy management plan that focuses on achievable, sustainable and measurable results.

Through these and other relationships with experts and community partners, we are able to monitor our progress against our plan, and update our procedures based on experience gained. Environmental sustainability is an iterative process, and Douglas College continues to learn and improve every year.

Declaration statement: This Climate Change Accountability Report for the period January 1, 2020 to December 31, 2020 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2021 and beyond.

By June 30, 2021, a link to Douglas College's final Climate Change Accountability Report will be posted to our website at www.douglascollege.ca.



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Overview

Actions taken in 2020 to minimize emissions

Key initiatives taken between January 1, 2020 and December 31, 2020 to reduce greenhouse gas emissions include:

New Westminster campus

- Car sharing options for students and employees for nine cars at this campus.
- Upgrade of 17 pneumatic VAV boxes to electronic, to improve temperature control and reduce energy waste.
- Single-pane exterior glazing replaced with double-pane on the south building, level 4.
- 19,820 lbs of scrap metal were collected, shredded and recycled.
- Lighting upgrades:
 - Installation of LED lighting in the Carnarvon Parkade c/w motion detectors and daylight sensors. The LED fixtures use less than half the power and the lights over the parking stalls dim to 20% after 20 minutes and then shut off 20 minutes later if no motion is detected. The lights also have photo sensors so if there is enough daylight they stay off.
 - Upgrade of Carnarvon Parkade stairwell lighting (pot & exit lights).
 - Installation of LED lights c/w motion detectors in all stairwells. The new lights use 50% of the power and are set to dim to 20% when not in use.
 - Installation of 60 LED lights in the Bookstore. The new lights use 50% of the power and are now tied into our lighting control system.
 - Retrofitted all hallway fixtures to LED and replaced 1,000 32-watt fluorescent tubes with 9.5-watt LED tubes. New drivers were installed and all the lenses were cleaned, eliminating the need for maintenance for another 40,000 hours.



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Centralized Student Services Renovation

- Upgrade of all lighting to LED with occupancy and daylight sensors.
- Upgrade of all VAV boxes from pneumatic to electronic and installation of DDC controls.
- Installation of occupancy sensors that turn off lights when rooms are vacant and switch VAV boxes into vacancy mode, resulting in energy savings from both the lighting and HVAC systems.
- DIRT Wall system used in major renovation of 2nd floor:
 - Over 12,350 lbs of drywall waste prevented from entering landfill (eliminates 4,820 lbs of H₂S and 10,170 lbs of CO₂e)
 - 146 lbs of paint-based VOCs and 20 lbs of drywall mud and tape-based VOCs prevented from off-gassing
 - 58% recycled and 1.2% bio-based content in wall solution
 - 1,690 recycled denim jeans in wall insulation and 53% less CO₂e than conventional fiberglass insulation.

Coquitlam campus

Lighting upgrades:

- Installation of LED lighting in the parkade that uses less than half the power of previous lighting. Lights over the parking spots dim to 30% if no motion is detected then shut off after 20 minutes.
- Installation of LED lighting in most stairwells c/w motion detectors for dimming to 20%.
- Replacement of 40 2-tube fluorescent lights with 20-watt flat panel LED fixtures c/w motion detectors, which use less than half the power and have a life expectancy of four times longer.
- Retrofit of all high boiler room lights to LED.
- Retrofit of all exterior metal halide or HPS pole fixtures to LED, including in the surface parking lot. The new LED bulbs use one third of the power compared to the existing bulbs and last at least twice as long, reducing servicing costs.



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Both campuses

- Added 17 EV charging stations: 7 in Coquitlam and 8 in New Westminster.
- Replaced plastic straws with paper straws in Food Services.
- Food take-out containers are fully recyclable or compostable.
- Food waste is composted and tracked. Waste oil is recycled.
- 25% of food products are locally produced.

Plans to continue reducing emissions 2021 and beyond

- Perform an energy audit on the heating systems at Coquitlam campus.
- Add carbon monoxide sensors to control the fans in the New Westminster campus parkade.
- Replace Chillers 1 & 2 (Phase 2) to provide increased efficiency and greater reliability. New adaptive controls predict operational needs throughout the day, and new compressors reduce total energy consumption by 40%.
- Where necessary, convert control of building exhaust fans from interlocked control to scheduled control based on occupancy. Where required, add DDC monitoring to exhaust fans to allow for improved return fan airflow tracking.
- Incorporate Climate Resilience features into the building envelope for projects such as:
 - Coquitlam – building envelope replacement for buildings A, B and the Daycare
 - New Westminster – upgrade of the walls and roof for the HR renovation
 - New Westminster – building envelope replacement for the building.
- Continue to convert the remaining 151 pneumatic VAV controls to DDC at the New Westminster campus.
- Continue lighting upgrade projects and installation of occupancy sensors, such as conversion of a further 300 pot lights to LED on Coquitlam campus.



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- Continue implementing Energy Conservation Measures (ECMs) identified in the ASHRAE level 2 audit (i.e., lighting upgrades, occupancy sensors, etc.).
- Upgrade science labs, including fume hoods and exhaust.
- Upgrade main air handling systems (to allow for higher capacity and increased efficiency).
- Re-write the College Policy on Environmental Sustainability.
- College membership of the Feed BC program.
- Introduce fibre-based cutlery, increase use of reusable tableware and eliminate plastic straws from all food service outlets.
- Further increase plant-based meals including more made from fresh ingredients.
- Increase locally-produced food products to 30%.

Douglas College is committed to researching and initiating, where feasible, short and long-term initiatives to promote environmental sustainability while meeting provincially mandated legislation for the reduction of Greenhouse Gas emissions.

The College will continue to pursue sustainability initiatives and encourages employees to think creatively and to act on reducing consumption in the workplace and take on the challenge of modeling new personal behaviour around sustainability.

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Emissions and Offset Summary Table

Douglas College's GHG Emissions and Offset for 2020 (tCO ₂ e)*	
GHG Emissions created in Calendar Year 2020:	
Total Emissions (tCO ₂ e)	1641
Total BioCO ₂	.142
Total Offsets (tCO ₂ e)	1641
Adjustments to GHG Emissions Reported in Prior Years:	
Total Offsets (tCO ₂ e)	-66
Grand Total Offsets for the 2020 Reporting Year:	
Grand Total Offsets (tCO ₂ e) to be Retired for 2020 Reporting Year	1575
Offset Investment (\$25 per tCO ₂ e)	\$39,375



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Retirement of Offsets

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, Douglas College is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 calendar year, together with any adjustments reported for past calendar years. 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 Approval



Kayoko Takeuchi, VP Administrative Services and CFO

May 27, 2021

Date