Royal Roads
UNIVERSITY

2023 PSO CLIMATE CHANGE ACCOUNTABILITY REPORT

Royal Roads University

May 2024

LIFE.CHANGING

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CLIMATE CHANGE ACCOUNTABILITY REPORT OVERVIEW

Declaration Statement

This Public Sector Organization (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. By June 30, 2024, our final *2023 Climate Change Accountability Report* will be posted to our website at www.royalroads.ca/about/plans-reports.

Overview

Climate action and sustainability are core to the mandate and values of Royal Roads University (RRU). The university undertakes projects to reduce GHG emissions in accordance with the BC *Climate Change Accountability Act*, the Carbon Neutral Government Regulation and our own climate commitments and reduction targets. This report lays out RRU's 2023 GHG emissions, examines trends and details actions undertaken and plans for continued mitigation, adaptation and sustainability initiatives.

As outlined in Table 1, Royal Roads produced emissions totalling 961 tonnes of carbon dioxide equivalent (tCO_2e) which included 240 tonnes of biogenic emissions ($tBioCO_2$) resulting from RRU's use of renewable natural gas (RNG or biomethane). Of RRU's total emissions, 720 tCO_2e require offsets in accordance with provincial reporting guidelines. Biogenic emissions are not included in offset totals since they would be released naturally during decomposition. RRU's total offset amount has seen a 30 per cent decrease compared to 2022 (1,022 tCO_2e) due mostly to RRU's designation of biomethane as its direct fuel source for select buildings midway through 2023 onward. Since 2010, RRU has reduced its total GHG emissions by 34 per cent (RRU's 2010 baseline is 1,465 tCO_2e[1]). Offsetable emissions have been reduced by 51 per cent since 2010.

2023 Emissions and Offset Summary

Table 1: Royal Roads University 2023 GHG Emissions and Offsets Summary

GHG emissions for the period January 1 - December 31, 2023	
Total $BioCO_2$	240
Total Emissions (tCO_2e)	961
Total Offsets (tCO_2e)	720
Adjustments to Offset Required GHG Emissions Reported in Prior Years[2]	
Total Offsets Adjustment (tCO_2e)	0
Grand Total Offsets for the 2022 Reporting Year	
Grand Total Offsets (tCO_2e) to be Retired for 2023 Reporting Year	720
Offset Investment ($25 per tCO_2e)	$18,000

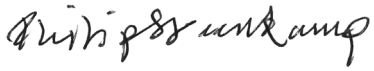
[1] Adjusted from 1,501 tCO2e due to emission factor updates by the province. Includes biogenic emissions.

[2] Emissions reported in previous years are updated as a result of new information becoming available, errors discovered in previously entered data, or consumption adjustments made by energy providers.

Retirement of Offsets

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, Royal Roads 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.

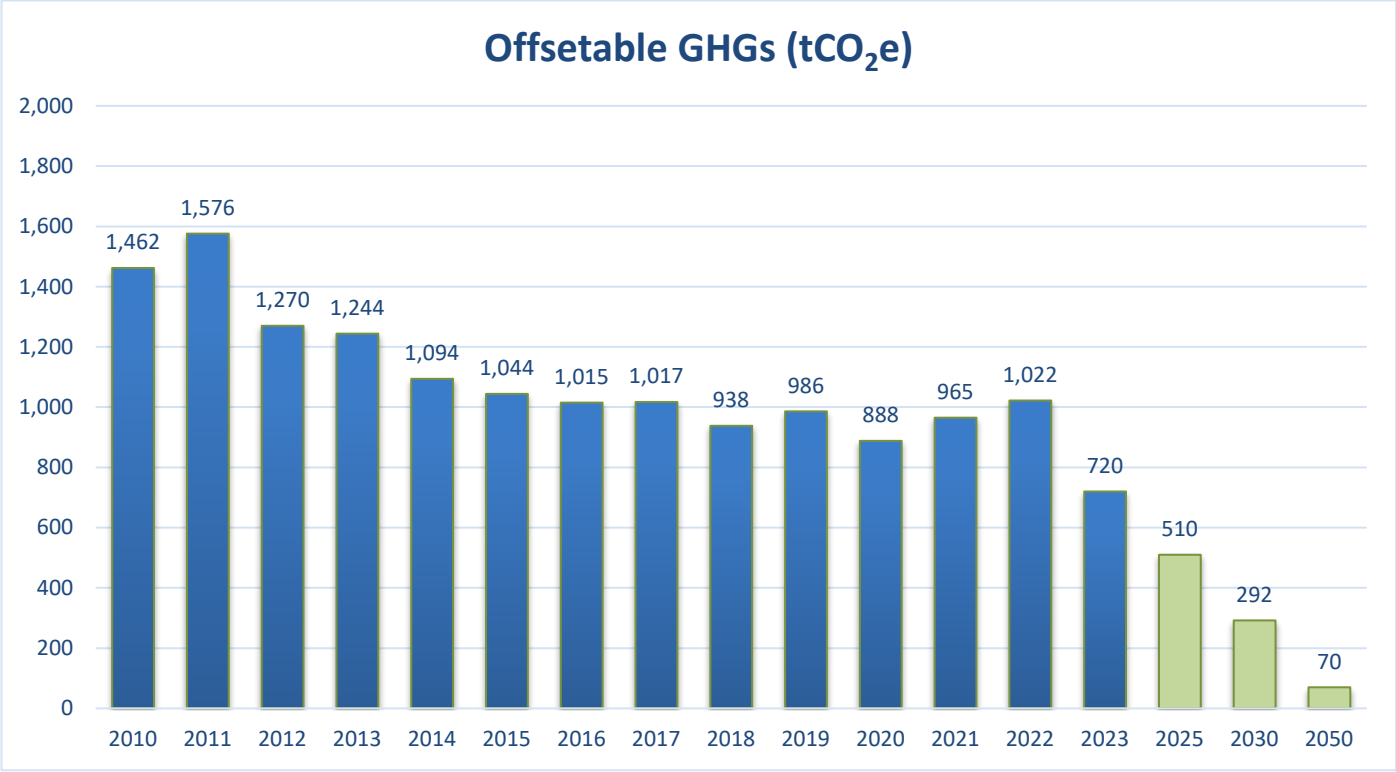
Executive Sign-Off:

	December 6, 2024
Signature	**Date**
Philip Steenkamp, PhD	President and Vice-Chancellor Royal Roads University
Name	**Title**

2023 GREENHOUSE GAS EMISSIONS PROFILE

In 2023, Royal Roads University's offsetable GHG emissions totalled 720 tCO_2e, which is half of our 2010 baseline. See Figure 1. This GHG reduction has been achieved mostly through RRU's switching from methane gas[3] purchased from Fortis BC to renewable natural gas (also known as RNG or biomethane). Through this program, the university designated 100 per cent of its fuel as a biomethane[4] blend and thereby reduced offsetable GHG emissions associated with direct fuel consumption. Royal Roads total GHG emissions for 2023 are 961 tCO_2e (which includes 240 tonnes of biogenic emissions ($tBioCO_2e$) plus 720 tCO_2e). This represents a 34 per cent reduction from RRU's overall baseline of 1465 tCO_2e in 2010. These provincially reported totals do not include Scope 3 emissions (see below for more on those).

Figure 1: RRU's Offsetable GHG Emissions, 2010 – 2023[5] and Future Targets (2025, 2030 & 2050)



[3] Methane gas is also known as "natural gas." RRU's source for this fuel is FortisBC, which supplies gas that is 95% methane (FortisBC). Methane has a global warming potential 28 times stronger that CO_2 (BC Ministry of Environment and Climate Change, 2023). Studies have shown that using the terminology of "natural gas" implies a clean source of energy and an undeservedly positive public perception (Yale, 2022). In recognition of these factors, RRU has changed its terminology.

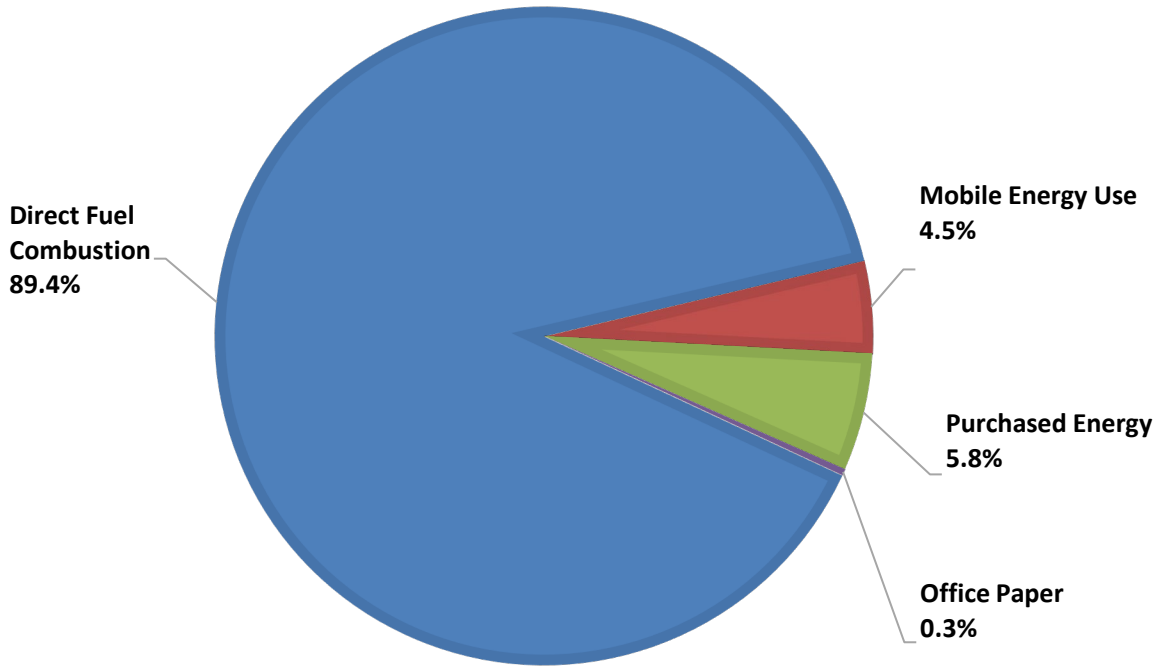
[4] Biomethane is another name for Renewable Natural Gas (RNG). In keeping with our use of "methane gas" in place of Natural Gas, we will use terminology that acknowledges the methane content of this biogas.

[5] Note that annual totals have been updated as per 2023 province-wide emission factor adjustments.

Emissions by Source

Building heating (direct fuel) accounts for the largest source of GHG emissions at RRU, followed by electricity (purchased energy), fleet (mobile energy use), and paper (see Figure 2 below).

Figure 2: Per Cent Total GHG Emissions by Source (no biogenic), 2023



As the diagram above illustrates, direct fuel combustion is RRU's most significant and material climate impact for operational emissions. Over the last three to four years, office paper has dramatically declined and now comprises less than one per cent of RRU's total inventory. Mobile energy use (primarily from fleet) has also declined as a greater proportion of RRU's fleet shifts to electric/hybrid.

Scope 3 Emissions

Through the *Climate Action Plan 2022 – 2027* and as a signatory to the UN Race to Zero, RRU has committed to measure, track and reduce scope 3 emissions (emissions that are considered as part of the up- and downstream of the university's value chain). While BC's Carbon Neutral program does not require the university to report or offset emissions associated with scope 3, RRU has been undertaking work in 2022 and 2023 to determine preliminary baselines of scope 3 emissions that are significant sources of the university's climate impact. These include business air travel, student air travel (both domestic and international), purchased goods and services, investments, waste and commuting. Once baselines are established, the university will have a clearer picture to inform better decision-making, build internal capacity and drive change in this important area.

STATIONARY SOURCES
FUEL AND ENERGY FOR BUILDINGS

Royal Roads has 26 buildings on the Colwood campus with a total area of 44,916 m^2. This includes a unique mix of buildings including seven with Federal Heritage Designations and 11 constructed prior to the Second World War. The largest source of GHG emissions at RRU is from stationary sources (buildings). Stationary use at RRU is primarily from heating buildings with methane gas but also from purchased energy for electricity. In 2023, eight buildings that were powered by gas accounted for 89.4 per cent of RRU's offsetable emissions (644 tCO_2e), while electricity accounted for 5.8 per cent (42 tCO_2e).

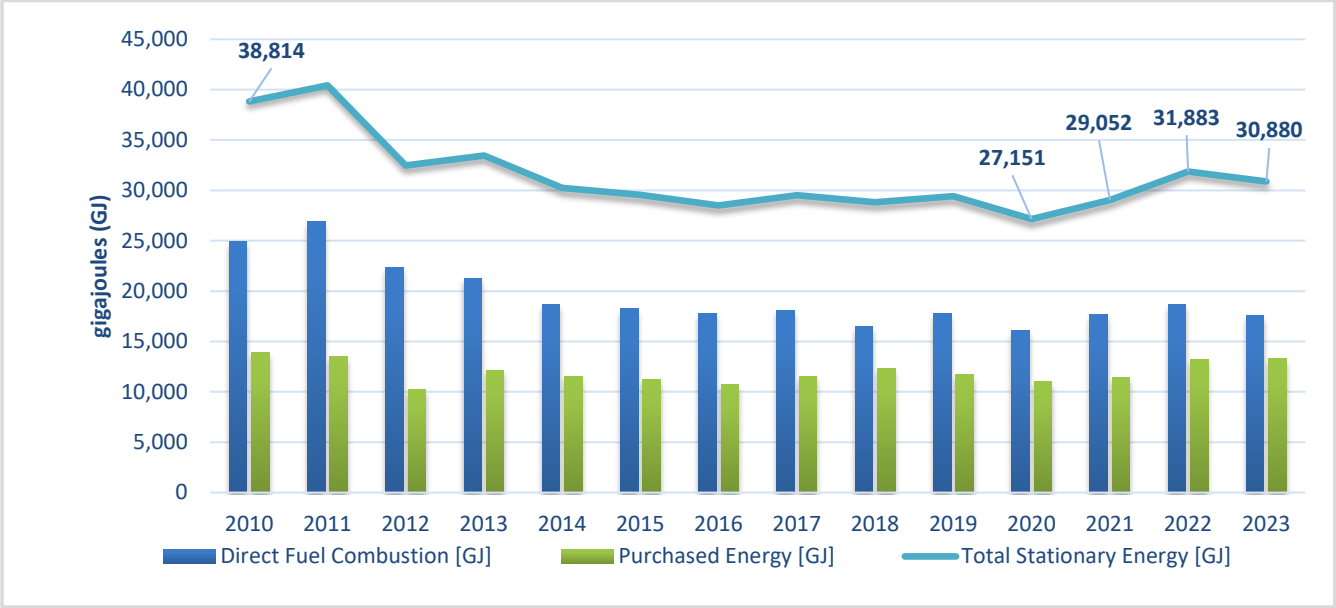
In the summer of 2023, Royal Roads opted into FortisBC's Renewable Natural Gas (RNG) program. RNG is biomethane that has been captured from decomposing organic waste from landfills and wastewater facilities. Through this program, the university uses existing gas infrastructure and pays a premium to designate a portion of its methane consumption as biomethane. In 2023, RRU purchased/designated 100 per cent biomethane for direct fuel for a portion of the year, the equivalent of 26 per cent of RRU's total gas combustion (239 $tBioCO_2e$). By 2024, RRU will use 100 per cent biomethane. As noted earlier, biogenic GHGs do not require offsets under the provincial program. Cumulatively, and including biogenic emissions, the GHGs produced by building energy make up 96 per cent of RRU's total GHGs in 2023 (925 of the 961 tCO_2e, of which 883 tCO_2e are from methane gas).

Purchasing biomethane is an interim step in achieving RRU's GHG reduction goals. In the future, RRU will be undertaking a holistic decarbonatization strategy that will include increasing energy efficiency, reducing energy consumption, and transitioning to low carbon and renewable energy systems.

Building Energy Consumption Trends

Building energy consumption data (measured in Gigajoules or GJs) provides a reliable means of tracking energy usage trends and reductions. Energy consumption is independent of GHGs which can vary due to emission factors and fuel types. Purchased energy (electricity) consumption has remained relatively consistent over time with a 4.5 per cent reduction since 2010. Direct fuel consumption has been reduced by 29 per cent since 2010; however, consumption rates have been relatively static over the last 9 years. RRU's stationary energy trends are illustrated in Figure 3 below.

Figure 3: Stationary Energy Use (GJs), 2010 – 2023



Direct fuel consumption (methane and biomethane gas from FortisBC) has remained in the 16,000 to 18,000 GJ range since 2014 but in 2023, RRU did see a slight decrease. Conversely, there was a slight increase in the consumption of purchased energy (electricity from BC Hydro). Contributing factors to these trends included the milder weather during an El Niño year, an increasing reliance on electricity for buildings now powered by heat pumps and, to a minor degree, the charging of electric/hybrid fleet and public vehicles. With increased metering, monitoring and energy management, RRU hopes to advance its understanding of such consumption shifts and anomalies.

As a notable success in 2023, four RRU buildings (Residences 3, 10, 27 and 28) had their first full year operating on new electric heat pumps, reducing overall methane gas consumption by about 820 GJ (or 41 $tC0_2e$) annually.

Plans to reduce building energy consumption

Through the work of RRU's new energy management program, analysis of campus energy use will consider heating and cooling loads. Campus and building-level utility metering provide greater capacity to monitor and analyze energy consumption and trends. This will allow us to make data-informed decisions and recommendations that support the university's decarbonization efforts.

In addition to RRU's GHG targets, energy-related targets include achieving a 33% reduction in energy usage by 2030 (in kWh/m^2/year vs. 2018 levels), saving 200,000 kWh in electricity annually, and reducing gas consumption by 3,250 GJ per year. Ongoing building assessments and energy audits will identify opportunities to increase energy efficiency, lower consumption and build resiliency. In parallel with building assessments, through the university's capital prioritization matrix, strategic end-of-life equipment upgrades will be identified such that renewal investments lead to efficient, low-carbon alternatives as well as research and feasibility studies into alternative and renewable energy solution. This phase supports RRU's transition to zero emissions by increasing electrification and decreasing fossil fuel use in equipment, buildings and energy systems.

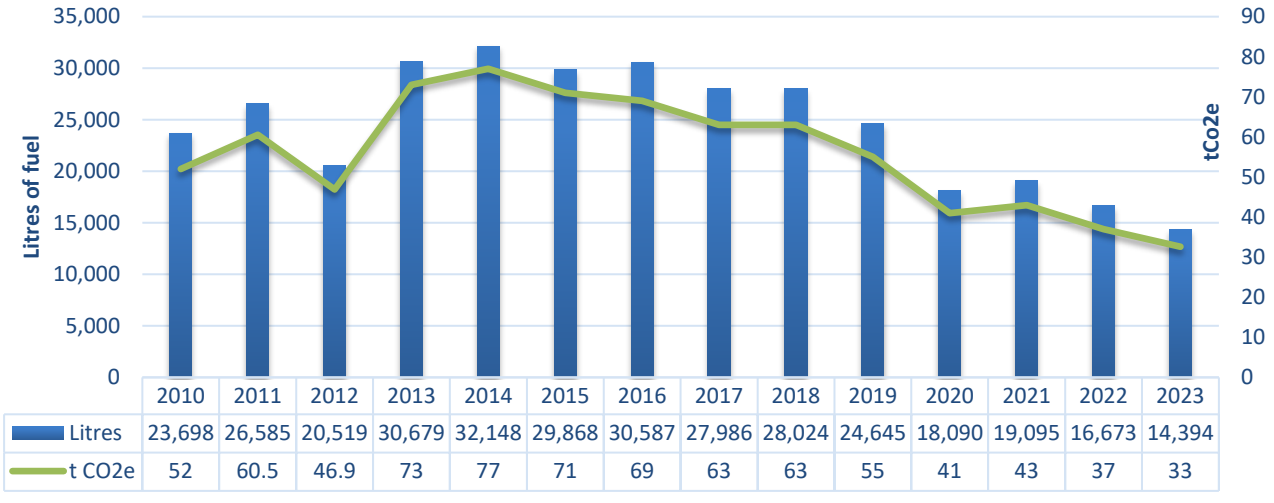
MOBILE SOURCES
FLEET ENERGY USE

In 2023, the RRU fleet produced 32.6 tCO_2e (mobile fuel combustion). This accounted for 4.5 per cent of the university's total GHG emissions. Since 2010, RRU has reduced fleet associated GHGs by 36.5 per cent – a difference of almost 20 tonnes of annual emissions (Figure 4). Continued fleet management and electrification have all led to lower fleet emissions this year. Through the installation of 12 new public EV chargers on campus (see page 12 for details), RRU was able to repurpose older chargers to our fleet charging area. RRU is on track to its goal of electrifying all regular-use vehicles by 2028.

Currently, the university has a mixed fleet that includes:

- 14 gas-powered vehicles (utility vans, trucks, and minivans)
- 5 hybrid electric vehicles (minivans and SUVs)
- 2 electric utility vehicles
- 31 electric golf carts
- 8 gas-powered working vehicles (tractors, mowers, and garden utility vehicles)
- 1 diesel-powered heavy-duty vehicle (dump truck)

Figure 4: Mobile Energy Use, 2010-2023

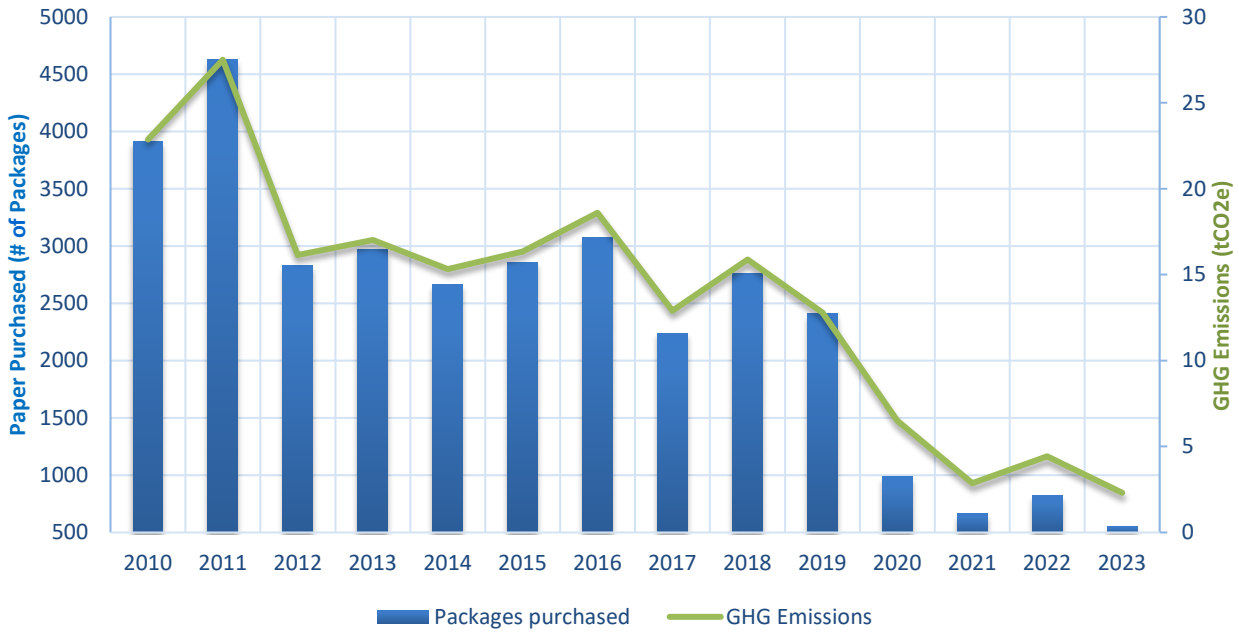


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Litres	23,698	26,585	20,519	30,679	32,148	29,868	30,587	27,986	28,024	24,645	18,090	19,095	16,673	14,394
t CO2e	52	60.5	46.9	73	77	71	69	63	63	55	41	43	37	33

PAPER CONSUMPTION

In 2023, emissions associated with office paper accounted for 2.3 tCO_2e or less than 1 per cent of the university's total GHG emissions. RRU's standard procurement practice is to select sugar cane paper for all 8 ½" x 11" paper orders which is considered a low- emissions paper. This, coupled with a continued shift towards online course delivery and increased electronic processes in RRU's finance and administrative areas, have resulted in significant paper savings. Since the pandemic, paper procurement consistently makes up less than 1 per cent of RRU's GHG emissions. See Figure 5 below for an overview of the consumption and emissions trend for purchased paper.

Figure 5: Paper Purchased and Associated GHG Emissions, 2010-2023



CLIMATE RISK MANAGEMENT

Climate Risk Assessment

In 2023, RRU developed a scope of work for a Climate Risk Assessment (CRA). The university prioritized a participatory assessment that aims to involve multiple interest holders to identify vulnerabilities beyond infrastructural and operational realms. The assessment will consider how a diverse set of climate hazards could impact university on- and off-campus assets, services, people, and strategic objectives, and provide a prioritized list of risks to inform action planning. The CRA builds on existing data and frameworks within the region by considering climate impacts not only to the local campuses, but also offsite locations and the broader global context.

Supported by a team of experts, this one-year assessment process will be RRU's first formal step into assessing climate risks. Key deliverables include a gap analysis, tailored risk assessment framework, an engagement plan and report, a risk matrix and a resilience roadmap. The project team will seek to engage key interest holders, including the university community, Indigenous rights holders and local partners. Engagement during the CRA will also include learning and capacity building opportunities with students, faculty and staff.

Piloting Climate Readiness Tool

RRU participated in the pilot test of the province's Climate Readiness Tool, an assessment tool designed to help public sector organizations self-assess, report and monitor progress on building climate adaptation capacity. By using the tool, RRU can identify its gaps and priorities, and identify focus areas to enhance organizational maturity for climate readiness.

What's next?

In the coming years, RRU will continue developing climate resilience by addressing the gaps and opportunities identified through the risk assessment and provincial climate readiness tool. Existing commitments also include:

- **Follow up on Climate Risk Assessment:** implementing and recommendations from the Climate Risk Assessment and resilience roadmap.
- **Adaptation Plan:** developing a Climate Adaptation Plan to integrate climate risk and resilience into RRU's Enterprise Risk Management (ERM) Framework and university governance, administration, operations, business development and service delivery models
- **Integrating Disaster Risk Reduction:** integrating disaster risk reduction and climate adaptation considerations within emergency plans and business continuity plans
- **Manage for Risks:** assessing, monitoring, reporting on and managing institutional climate risks within the ERM Framework
- **Infrastructure Readiness:** ensuring new buildings and major renovations integrate climate risk and adaptation considerations

OTHER CLIMATE & SUSTAINABILITY INITIATIVES

PROGRAMS & OUTREACH

Climate Education & Training

In addition to the large and continually expanding suite of course and programs focused on climate, sustainability and environment, new training opportunities were established for climate professionals. RRU's Climate Adaptation Fundamentals Micro-credential program, which includes courses offered in partnership with the Climate Risk Institute, is one leading example.

The Farm at Royal Roads

In 2023, The Farm at Royal Roads doubled its crop production and provided community partners with more that 3,000 pounds of produce. Organizations involved with and benefitting from *The Farm* last year included Our Place Society, Iyé Creative, the Victoria Community Fridge and RRU's community fridge. Additionally, the Toronto Dominion Bank donated $196,000 to RRU's *A Vision in Bloom* program which works through *The Farm* to tackle food insecurity, preserve cultural heritage and improve biodiversity.

Stewardship sessions

Since Earth Day in April, members of the Climate Action and Sustainability, Grounds and Gardens, and Human Resources teams worked together to host campus stewardship sessions. RRU participants attended lunch-hour sessions to learn about native plants and ecosystems, remove invasive plants, (such as Scotch Broom and English Ivy), pick up trash at the Esquimalt Lagoon shore and volunteer at RRU's Giving Garden.

Resilience and Reconnection Circle

In recognition of the mental and emotional impacts that climate change, political polarization and biodiversity loss are having on the university community, Associate Professor, Hilary Leighton, and the Climate Action & Sustainability Team invited interested staff and faculty to a monthly Resiliency & Reconnection Circle. During these one-hour facilitated discussions, participants build connections with others as they acknowledge and process their emotions in ways that build courage, acceptance, and inner strength.

CAMPUS OPERATIONS

Smart Chargers added

In 2023, ten new smart EV charging stations were added to public lots and in 2024, two were added to the parking area at the Rose Garden Cottage. This brings the campus total to 24 chargers and meets our 2025 target ahead of schedule. The new smart chargers communicate with a publicly accessible EV charging network and allow RRU to track consumption data and plan for future expansions.

Rose Garden cottage completed

The Rose Garden cottage renovation was completed in 2023. Providing a new home to RRU's Cascade Institute, this is the first campus project to meet Zero Carbon Building (ZCB) Design Standards™.

Scope 3 reductions and the Race to Zero

RRU committed to reducing GHGs across all emission scopes and is a signatory to Race to Zero group for post-secondary institutions. In 2023, faculty members furthered this goal by establishing preliminary baselines for most of RRU's material Scope 3 emissions (including business and student air travel, investments, waste and purchased goods and services). Next steps include establishing a baseline for commuting, developing processes for tracking all material emissions, and determining practice and policy leadership that will contribute to a comprehensive decarbonization strategy.

R22 Phase out & Roof Upgrades

RRU prioritized phasing out Freon (or R22 ozone-depleting hydrochlorofluorocarbon refrigerant). In 2023, we replaced this equipment with chlorine-free refrigerants (R410A) that do not contribute to ozone depletions and have an added benefit of improving efficiency. RRU used this opportunity to upgrade associated roof envelopes and enhance building performance.

SUCCESS STORIES

Improving Energy & Water Management on Campus

In 2023, RRU secured BC Hydro funding in support of the launch of an energy management program. Within this framework, development of a *Strategic Energy Management Plan* (SEMP) was prioritized as a first step. This plan will chart the course for energy considerations that will help RRU's meet its Net-Zero goals by 2050. With a focus on metering, monitoring and auditing, RRU will be in position to decrease energy consumption, increase electrification and transition to renewable energy sources. Improved energy management will put the university on track to decarbonization. Additionally, through this program, RRU will seek to improve water quality and quantity on campus. This involves a systematic review of both incoming water to the campus and water use on campus.

Climate Week

In December 2023, RRU organized Climate Week, an inaugural series of free conversations and events featuring inspiring thought-leaders, activists, artists and change agents to challenge society to look at climate solutions in a new way. Climate Week topics focused on amplifying diverse perspectives on topics such as decolonizing climate action, leadership, relational accountability, social movements, and art as inspiration for much-needed social change.

Four online speaker series events and three in-person engagement sessions made up the calendar of events. The week culminated in a community-based art project developed in partnership with the Township of Esquimalt and UVic's Department of Education. Attendees co-created a climate canvas mosaic which will ultimately be hung at RRU Campus. Two of the week's sessions included students in the MA in Climate Action Leadership program (a virtual poster presentation of their work and a two-day Climate Action Leadership Accelerator Workshop). Climate Week attracted more than 800 registrants and created inspiring week of connection-building, and a jumping off point to explore climate action as a cultural, relational and equity challenge.

CLIMATE AND SUSTAINABILITY INITIATIVES PLANNED FOR 2024 AND BEYOND

In the coming year, RRU will embark on the following climate action and sustainability initiatives:

PROGRAMS & OUTREACH

Stewardship club

In 2024, RRU will establish a stewardship program called RRU's Healthy Planet Club. Through support from the WWF Go Wild Grants program, regular opportunities to learn about restoration and biodiversity conservation will be offered. The stewardship program is an extension of RRU's experiential learning approach and will increase awareness among participants of our local ecosystem, its history, biodiversity and what it needs to thrive. Beyond providing educational opportunities, RRU's Healthy Planet Club will increase agency and action through hands-on initiatives to regenerate natural spaces by removing invasive species.

The Farm at Royal Roads grows

In the coming years, The Farm at Royal Roads will add new beds for growing food and culturally relevant plants. Plans include adding an Indigenous Medicine Garden, a Market Garden, and restoring and expanding the existing polyculture orchard. With a significant donation from TD Bank, strengthened partnerships with community organizations and the continued dedication of staff and volunteers, The Farm is poised to build upon their prior successes. Key to this is the integral role these projects have within RRU's Living Lab model and their potential for decolonizing curricula.

Employee development & competencies

To build capacity and resilience within RRU. Work has begun to integrate climate considerations and skills into professional development opportunities, new employee onboarding and the competency framework for supporting career growth.

Applied Learning

In 2024, work will continue on the development and support of a cross-departmental roster of student research projects, applied learning and volunteer opportunities that focus on varied climate-related and sustainability topics.

Climate Education & Training

Initiatives that are expected to ramp up or get rolling in the coming year include:

- The Career Innovation Project which creates work-integrated learning opportunities for engaging students, faculty and staff in conversations with industry about climate action opportunities and challenges. With support from the Government of Canada, this project is being led by RRU's Career Learning and Development office in partnership with the Business and Higher Education Roundtable.
- RRU will build on the memorandum of understanding that was signed with the University of the Philippines Los Baños to design and deliver a Climate Action Leadership Program for professionals working in postsecondary education in the Philippines.
- A new Infrastructure and Climate Resilience Planning Micro-credential Program will be offered through RRU's Professional and Continuing Studies.

CAMPUS OPERATIONS

Strategic Energy Management (SEMP)

The SEMP establishes an energy baseline and goals to reduce overall campus energy use and support emission reduction targets set out by the Climate Action Plan. The plan supports ongoing capital and operational projects including the completion of a project to install building-level electrical and mechanical (gas and water) meters.

Water management

RRU has established a water use intensity (WUI) target of 20% reduction from 2010 levels by 2030. We aim to achieve our goals through ongoing energy audits (which include water conservation measures), an irrigation audit, water efficiency/audit programs and installing water sub-metering for many buildings around campus.