

Thompson Rivers University Sustainability



2019 Carbon Neutral Action Report





“TRU is an... environmentally responsible institution...”.



Declaration statement: This TRU Carbon Neutral Action Report for the period January 1st to December 31st, 2019* summarizes TRU’s emissions profile, the total offsets to reach net-zero emissions, the actions taken in 2019 to reduce greenhouse gas emissions, and plans to continue reducing emissions in 2020 and beyond.

*See statement in 2.0 re 2019 emissions reporting due to COVID 19.



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Images from various 2019 TRU events, campaigns and moments



1.0 Executive Summary

Thompson Rivers University (TRU) continues to be a leader in sustainability. In 2019, TRU topped both the Sierra Club's Cool School rankings and the Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking and Assessment Rating System (STARS). STARS is recognized by 931 institutions in 37 countries as the most comprehensive benchmarking tool for sustainability in higher education. In addition to being one of only five institutions to ever achieve a Platinum rating, TRU also holds the highest overall rank globally. In 2019, TRU developed a new Strategic Sustainability Plan (SSP). This plan provides a framework to measure and make improvements on four key sustainability-related areas surrounding the reduction of Greenhouse Gas (GHG) emissions. The new SSP framework also aligns key metrics with the United Nations Sustainability Development Goals (SDG), ensuring the institution can monitor progress related to the goals across all areas and functions.

The Sustainability Office has a full-time director who also serves as TRU's Energy Manager. In addition, the Sustainability Office has a full-time Zero Waste and Environmental Programs Coordinator, a Fortis BC funded Energy Specialist, as well as numerous co-op and research students to assist with various initiatives and research. The Sustainability Office works closely with the Facilities Office, Ancillary Services, and the Capital Projects Director on a multitude of projects to lower scope 1, 2 and 3 emissions. The Office also works closely with Human Resources and with staff and students in a variety of sustainability-related co-curricular education and awareness campaigns.

Sustainability has become central to the ethos of the campus and a common point of pride within a highly engaged campus community. TRU continues to be recognized as an innovative leader in advancing sustainability at the regional, national and international level. Past, present and future Low Carbon Electrification (LCE) projects highlight that organizations can retrofit-existing buildings and construct new buildings while meeting or exceeding provincial GHG emission reductions. In addition to reducing energy consumption, TRU continues to electrify its vehicle fleet, reduce paper and divert landfill waste.

A handwritten signature in black ink, appearing to read 'James Gudjonson'.

James Gudjonson

Director, TRU Sustainability Office



2.0 COVID-19 - Climate Action Secretariat Directive issued March 31, 2020

March 31, 2020,

Dear Public Sector Organization Contacts:

I want to begin by thanking all of you for your hard work and collaboration with the Climate Action Secretariat (CAS) staff as we embarked on the first Carbon Neutral Government (CNG) reporting cycle using the new Clean Government Reporting Tool (CGRT).

We are aware the COVID-19 pandemic has impacted all government and public sector organization (PSO) operations, and will continue to do so in the weeks and months to come. We recognize that many PSO staff who normally work on CNG reporting are being pulled away to focus on urgent pandemic-related duties.

We are getting many requests for extensions to the June 30, 2020 CNG reporting deadline. The June 30 deadline for preparing and publishing Carbon Neutral Action Reports and retiring offsets is established by the *Climate Change Accountability Act* (CCAA). Amending the CCAA is not feasible in spring 2020.

Instead, the Director under CCAA has issued a directive for the 2019 CNG reporting cycle. The text of the directive is reproduced here and will be made available online shortly.

Directive issued March 31, 2020

*Under my authority as the Director for the purposes of the Act, and under the authority delegated to me in Section 6 of the Carbon Neutral Government Regulation, **I hereby direct that all ministries and Public Sector Organizations covered by the Carbon Neutral Government requirement shall use their 2018 GHG emissions as a temporary estimate for their actual 2019 GHG emissions, for the purposes of the 2019 Carbon Neutral Action Reports and 2019 Carbon Neutral Government reporting required under the Climate Change Accountability Act.***

Neil Dobson, Executive Director, Clean BC Implementation
Climate Action Secretariat

This approach allows PSOs to meet their legislated CNG reporting requirements and timelines, while providing the flexibility for PSO staff to address the impacts of the COVID-19 pandemic in the short and medium term.

Clean Government staff will communicate the specific steps you need to take for using the 2018 emissions as a placeholder for 2019 emissions and completing your 2019 Carbon Neutral Action Report.

Actual 2019 GHG emissions will still be reported in CGRT, but at a pace that reflects PSO capacity in the current situation. Modifications for the 2019 reporting cycle will be addressed in the 2020 reporting cycle period as prior year adjustments.



2.0 COVID-19 - Climate Action Secretariat Directive issued March 31, 2020

At this time, please be advised of the following points:

- Do not take any action on this directive until you receive detailed instructions from the Clean Government team.
- Do not attempt to load your 2018 data into CGRT for 2019.

The Clean Government team will provide FAQs and presentations over the coming weeks to explain next steps in further detail.

Thanks again for your hard work to achieve carbon neutrality – this year's reporting and offsetting will mark the tenth consecutive year of carbon neutral government operations in B.C.!

Sincerely,

Chris Koski
Director, Clean Government,
Climate Action Secretariat





3.0 2019 (2018) Greenhouse Gas Emissions

3.1 Offsets Applied to Become Carbon Neutral in 2019 (2018)

As per the March 31, 2020 Directive mentioned in 2.0, the following information pertains to Thompson Rivers University's 2018 greenhouse gas emission which will also be used for this 2019 report. These calculations include emissions from both the Kamloops and Williams Lake campuses, along with all in-scope leased or owned regional centres. In 2018, TRU's emissions amounted to 3,715 tons of carbon dioxide equivalent (tCO₂e) and total offsets required were 3,710 tCO₂e. These same amounts will also be used for 2019.

Exclusions

It was estimated that stationary fugitive emissions from cooling comprised less than 0.01% of Thompson Rivers University's total emissions. TRU deemed fugitive emissions out-of-scope as per the 1% Rule listed in the *2014/2015 B.C. BEST PRACTICES METHODOLOGY FOR QUANTIFYING GREENHOUSE GAS EMISSIONS*, Annex 8.3 (How to Treat Small Emissions Sources), Table 18, due to the disproportionately onerous task of measuring those emissions.

Offsets Applied

Reporting period 2018 offsets were 3,710 tCO₂e, for a total offset investment of \$92,750.00. 5 tCO₂e from Scope 1 (Mobile Combustion (Fleet) and Stationary Combustion) did not require an offset payment. Those emissions (5.02 BioCO₂) were deemed offset exempt, or carbon neutral, as illustrated in the Totals table below.

Totals Calendar Year 2018, Thompson Rivers University

	Measure	Quantity	Greenhouse Gases in Tonnes				tCO ₂ e ¹
			CO ₂	BioCO ₂	CH ₄	N ₂ O	
Scope 1 (Direct) Emissions							
Mobile Combustion (Fleet)	Litres	61,113.92	140.53	5.02	0.01	0.03	154.58
Stationary Combustion, Reported ³	GigaJoules	65,807.40	3,262.73	0.00	0.07	0.06	3,282.03
Scope 2 (Indirect) Emissions							
Purchased Energy, Reported ³	GigaJoules	54,453.41	163.36	0.00	0.00	0.00	163.36
Scope 3 (Business Travel and Office Paper) Emissions							
Office Paper	Packages	19,400.00	114.85	0.00	0.00	0.00	114.85
Total Emissions, Calendar Year 2018			3,681.47	5.02	0.08	0.09	3,715
Carbon Neutral or Offset Exempt			0.00	5.02	0.00	0.00	5
Total for Offsets⁴			3,681.47	0.00	0.08	0.09	3,710

1. Each greenhouse gas has been converted to a standard measurement (tCO₂e) by multiplying its emissions by its global warming potential (GWP). The GWP of carbon dioxide (CO₂) from both anthropogenic and biogenic sources is 1; methane (CH₄) is 25, and nitrous oxide (N₂O) is 298. The Totals for tCO₂e are shown here rounded to the nearest whole metric tonne as only whole tonnes of tCO₂e can be purchased for offsets.

2. Estimated data has been calculated based on the methods described in the Methodology Document.

3. Reported data refers to consumption which has been directly billed to the organization.

4. The tCO₂e value from the "Total for Offsets" line represents the quantity of offset purchases required to become carbon neutral.



3.0 2019 (2018) Greenhouse Gas Emissions

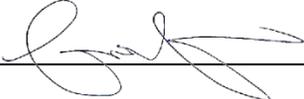
Thompson Rivers University GHG Emissions and Offset for 2019 (from 2018) (tCO ₂ e)	
GHG Emissions created in Calendar Year 2018 (From SMARTTool Reports page - see Appendix for instructions and cell references)	
Total Emissions (tCO ₂ e)	3715
Total BioCO ₂	5.02
Total Offsets (tCO ₂ e)	3710
Adjustments to GHG Emissions Reported in Prior Years (from SMARTTool Homepage - see Appendix for instructions):	
Total Emissions (tCO ₂ e)	0
Total Offsets (tCO ₂ e)	0
Grand Total Offsets for the 2018 AND 2019 Reporting Years (from SMARTTool Homepage AND the new Clean Government Reporting Tool): (This is the total of emissions that must be offset for Reporting Year 2018 AND 2019)	
Grand Total Offsets Required (tCO ₂ e)	3710
Total Offset Investment (Grand Total Offsets Required X \$25/tCO ₂ e)	\$92,750.00

*Note, for School Districts, Total Offsets will not equal Total Emissions minus Total BioCO₂ because offset exemptions for school buses are included within Total Emissions.

Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, **Thompson Rivers University** is responsible for arranging for the retirement of the offsets obligation reported above for the 2018 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 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: [To be signed by a senior official, such as **CEO, COO or Superintendent**]

	May 29, 2020
Signature 	Date
James Gudjonson	Director, TRU Sustainability Office
Name (please print)	Title

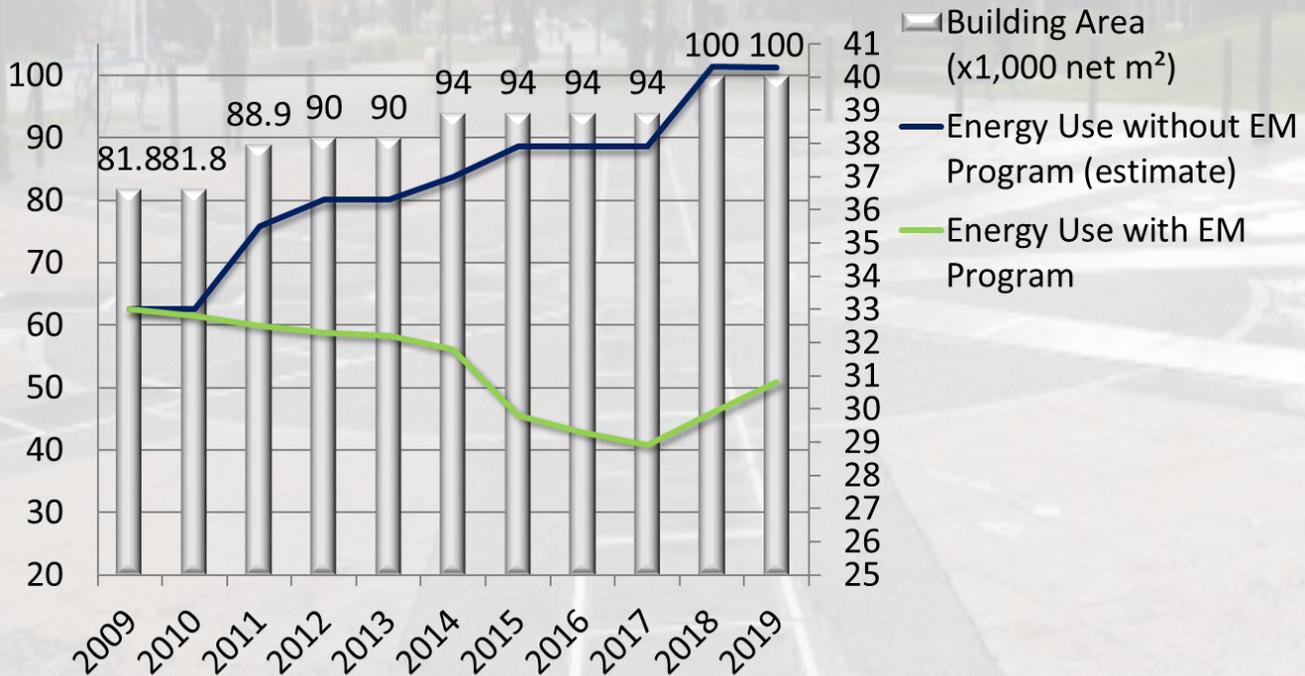


4.0 Actions Taken to Reduce Emissions in 2019

Energy Reduction Projects and Initiatives

Revolving Energy Fund

The Revolving Energy Fund (REF) continues to grow upon the completion of annual energy conservation projects and accumulated savings. TRU remains on track towards a 40 percent reduction in GHG emissions by 2022. In addition to technical changes, TRU's involvement in the Energy Wise Network Program and the TRU Sustainability Ambassadors Program, which educate, engage and empower students and staff, have helped garner the much needed internal support towards reducing our carbon emissions and environmental impact. The table below illustrates TRU's reductions to date relative to growth.



Williams Lake (WL) Electric Boiler

As another Low Carbon Electrification project, the natural gas heating plant at the Williams Lake campus was retrofitted to an electric boiler (which will continually serve as a backup for the biomass district energy system (DES)) heating both the TRU WL campus and school district. At the same time, the piping of the heating plant has also been optimized to maximise the heat extraction from the biomass DES.



4.0 Actions – continued

Upper College Heights (UCH) Boiler Upgrades

After a comprehensive custom design study, the outdated heating and cooling plants at UCH were retrofitted. Condensing boilers and circulating pumps with VFDs were installed. We estimate this will result in more than 1500 GJ of natural gas savings every year.

Old Bandstra Building Lighting Upgrade

In 2019, TRU purchased the site of the Bandstra trucking company, which included a parking lot and building. Lighting of this new TRU purchased building has been upgraded to LED lighting technology. We anticipate saving 20,000 kWh of electricity per year.

New Construction Program

The new Nursing and Population Health building participated in the BC Hydro new construction program. As a result of this program, new energy efficient measures were implemented including increased roof insulation, high performance windows, interior and exterior Lighting Power Density reduction, and a HVAC heat recovery unit. Overall, 270,000 kWh of electricity will be saved yearly.

Air Curtains Installation

Two big air curtains were installed over two of the main bay doors at the Warehouse. They create invisible air barriers over the two doorways by separating indoor and outdoor environments efficiently, but without limiting the access for people or vehicles. By installing the air curtains, we anticipate about 850 GJ/year in natural gas savings.

Sustainability Initiatives

Transportation

Bicycle programs

The TRU bicycle programs continued to grow in popularity in 2019, both for the Bikeshare, which saw more than 150 unique riders with over 300 bookings, and the Ebike Purchase Program, that continued with 14 new applications. Our fleet of electric bicycles has grown and now includes road bikes and more electric mountain bikes. We have purchased two additional commuter oriented standard bikes for those who don't want or need the electric assistance. These bikes are perfect for students to use for just getting around, and for use in conjunction with transit buses for longer distances or hills (by using the bike rack on the front of buses). The Seasonal Commuter Parking Pass Program was launched successfully seeing over 20 users for its first year. This program provides parking for bicycle commuters so they can drive and park during the winter months of the year and not have to pay for two full semesters worth of parking fees. TRU has also expanded into a small electric cargo utility bike for use around campus and an electric scooter, both for the purposes of exploring low-carbon micro transportation options.



4.0 Actions – continued

Sustainability Initiatives - continued

Automotive programs

Zipcar

Our general car share rental program, Zipcar, saw continued growth in 2019 with about 15 new users every semester, ending the year with over 200 members. Unfortunately, 2020 marked the end of Zipcar's presence in British Columbia due to external factors out of our control. A review of the program shows strong use of the cars by students, exceeding initial expectations and projections giving us confidence that a new car sharing option for students should be pursued.

TRU Carshare

The TRU business car-sharing fleet was heavily utilized in 2019, with multiple offices praising the use of the four branded TRU vehicles for promotion and recruiting events. In 2019, we shifted to a new booking platform to improve the efficiency of booking the vehicles and simplify the administration duties needed to run the program. A detailed review of TRU Carshare was submitted to TRU administration with the intent of soliciting funding to purchase our first long-range electric vehicle for the program by demonstrating the financial and environmental benefits.

TRU Rideshare (car pool)

Carpooling continued to be popular in 2019 with TRU students, staff, and faculty. TRU Rideshare saw growth on campus through the program that aids users in finding commuting partners. While the primary intent of the ride share program is to match automotive commuters to reduce single occupancy traffic on campus, the website and app also aided students and employees in finding cycle, transit, and walking commuters as well, so that they can come to campus in groups. This has been particularly helpful in getting new cyclists to try out commuting; giving them confidence by following someone that knows the roads and safe practices to get to campus.

Campus Community Engagement

Student Sustainability Ambassador Program

Reinitiated in September 2019, the Student Sustainability Ambassador Program once again increased awareness of sustainable practices and initiatives on the Kamloops campus. A team of seven student Ambassadors increased student understanding of the importance of energy efficiency by providing tips to students during weekly outreach. Ambassadors promoted several initiatives and events including the Zip Car Program, the Bike Share Program, the Car Share and Ride Share programs, Fill It Forward, Surveying for the city of Kamloops, the TRU Student Union Clothing Swap, the Peer Mentor Extravaganza, student orientations, and other smaller initiatives. This program supports behaviour change initiatives with students, staff, and faculty, and directly contributed to increased utilization of said programs as well as reduction in Scope 3 Emissions. In the 2019 – 2020 academic year, the Ambassadors achieved 1,388 student interactions. This number is expected to grow to 3,500 in the coming year.

Community Film Events

The TRU Sustainability Office continued its practice over the last five years of hosting free sustainability-focused film events for anyone in the community. Its *Films For Change* series showed films in January, February, March, April and November, but the seminal event of the year was the screening of *Beyond Climate* in early March with a live Q&A afterwards with one of the filmmakers... David Suzuki!



4.0 Actions – continued

Sustainability Initiatives - continued

EV Day event

The Electric Vehicle (EV) Show is a large scale community event hosted on the Kamloops TRU campus to increase awareness of and knowledge around electric vehicles, and encourage their increased use in the Kamloops community. The 2019 EV Show was held for the second year in a row on June 23, 2019 from 10:00 am to 2:00 pm. The event was hosted by the TRU Sustainability Office and the British Columbia Sustainable Energy Association (BCSEA). Roughly 425 people attended; and most responded in a post-event survey that the event was quite informative. EVs included electric bikes, Teslas, Chevy Bolts, Nissan Leafs, and others. With room for growth and improvement in the years to come, the two organizing partners and many attendees left the event with excitement for next year's show and the possibility of owning their own electric vehicle. This event supported the Kamloops community and likely lead to reduced Scope 3 emissions for both the university and the larger surrounding community.

Sustainability Events

Most events that the Sustainability Office either organises or participates in throughout the year engage with members of the TRU and Kamloops communities to try and get them working towards and thinking about sustainability in some way. These events include, but are not limited to, The BC Cool Campus Challenge, National Sweater Day, Bike To Work Week, Trash Bash, Casual Shirt Fridays, Love & Layers, Earth Hour, Waste Reduction Week, Ride Don't Hide, Kamloops Green Living Expo, Repair Café, World Water Day, and TRU TEDx.

Zero Waste Initiative

TRU continues to pursue a plan towards 'zero waste' on campus (defined as diverting 95% of all waste from landfill). 2019 was a pivotal year with this plan since it marked several key aspects of the plan: it was the first full year of operation of the Recycling Sorting Centre (whose new full-time employee sorted all campus single-stream recycling before being picked-up to ensure contaminants were close to 0%); it was the beginning of cardboard baling and garbage compacting operations (which led to the hiring of another full-time employee to take care of these two things), and the commensurate elimination for the need for dumpsters to deal with these two waste-streams; and the first full year of producing quarterly instead of yearly waste audits, which helps staff determine in a more timely way what zero waste measures need addressing.



5.0 Plans To Continue Emission Reductions Moving Forward

Energy Projects

Continuous Optimization program - Round 2

After finishing Round 1 of the Continuous Optimization Program, BC Hydro approved four buildings (BCCOL, IB, A&E, and HOL) to go through Round 2 and to be recommissioned again. All Round 1 measures will be reviewed and, based on the changes of occupancy, building use and the building's systems, new recommendations will be made to ensure each building is performing optimally.

DDC optimization

Based on a campus-wide DDC optimization Fortis Custom Design program (which is a funded study), energy conservation measures recommended in the study will be implemented, which will likely include nighttime setbacks, reduced minimum damper positions, and weather predictors.

Sustainability Projects

Transportation

Second Review with E3

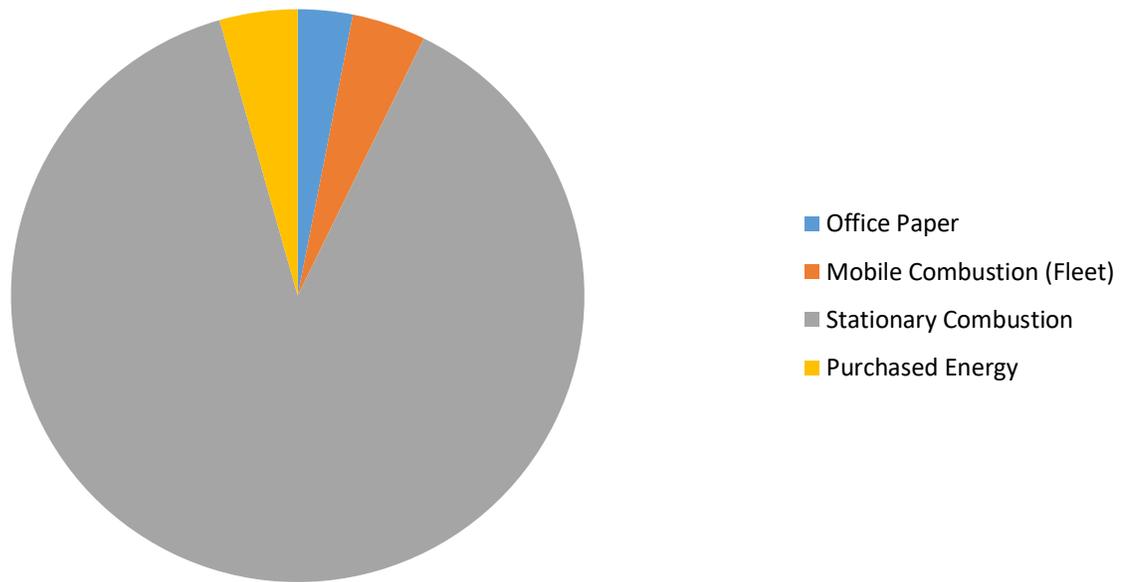
TRU enrolled in the E3 Fleet program (https://www.fraserbasin.bc.ca/ccaq_e3_fleet.html) in order to improve the fuel efficiency of the 49 vehicles in its fleet and the driver training. E3 Fleet is a fleet review and rating program which offers public and private sector organizations the opportunity to identify and achieve energy savings and emissions reductions in their fleets—and to be recognized for those accomplishments. Launched by the Fraser Basin Council in 2006 with 17 charter fleets, today the E3 Fleet program has 140 member fleets and over 50,000 vehicles. TRU completed its first review in July 2018 and will do its final review in June 2020. Upon completion, it will be assessed for a rating from Bronze to Platinum. TRU's goal is to continuously improve its rating until it reaches Platinum status.

Zero Waste Initiative

TRU is working with a waste consultant to create a 5 year TRU Zero Waste Plan, so that, in 5 years, it has the necessary pieces in place to actually divert 95% of its waste from landfill.



Thompson Rivers University Greenhouse Gas Emissions by Source for 2019 (from 2018) in tCO₂e1



Offsets Applied to Become Carbon Neutral in 2019 (from 2018) (generated May 16, 2019)

Total offsets required: 3,710. Total offset Investment: \$92,750.00.

Emissions not requiring offsets: 5**

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

**Under the Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act, all emissions from sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.