Canadian Mennonite University

Greenhouse Gas Emissions Report for the 2021 Fiscal Year

May 1, 2020, to April 30, 2021

climatesmart

Contents

Key terms

For further terms, see Climate Smart's online glossary.

Baseline GHG Emissions Inventory: A comprehensive, quantified list of an organization's greenhouse gas emissions and sources for the initial reporting year (base year). The baseline GHG inventory is the level of greenhouse gas emissions against which future GHG inventories are compared.

Biologically sequestered carbon: Long-term carbon stored in biomass, such as forests, soils and peatland. Carbon is "locked" into organic matter through biological processes. This carbon can be released through e.g. burning of biomass as fuel or change in land use.

Carbon Dioxide Equivalent (CO_2e): The universal unit for comparing the emissions from various greenhouse gases. The carbon dioxide equivalent for a gas is derived by multiplying the mass of the gas by the associated global warming potential (GWP). For example, the GWP for methane is 21. This means that emissions of one metric tonne of methane are equivalent to the emissions of 21 metric tonnes of carbon dioxide.

Carbon Offset: A project or activity that results in a given amount of greenhouse gases being avoided or reduced in one place, that is used to 'balance out' another's total GHG emissions. Emission reductions that are real, additional (beyond business as usual), measurable, permanent, and verified can generate offset credits. Credits are tradable certificates.

Emission Factor: A factor that converts activity data to GHG emission values, e.g. lbs of carbon dioxide emitted per barrel of fossil fuel consumed.

Renewable energy certificates (RECs): RECs are tradable energy certificates representing proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (e.g. solar or wind) and was fed into the electricity grid.

Climate Smart at a glance

Climate Smart, a Radicle Group Company, is an award-winning certified B Corp that has developed a practical and solutions-based program for SMEs to **profitably track and reduce GHG emissions**. Climate Smart emphasizes the business case for GHG reduction: **operational efficiencies**, **cost savings**, and **competitive advantage**.

Using an SME tailored approach, Climate Smart provides **innovative tools and programming** for our "host partners" on the front lines—cities, ports, airports, chambers, and financial institutions—to disrupt old economic trajectories and invest in more efficient technologies to deliver cleaner products and services.

Since 2007, Climate Smart has worked with 40+ host partners to engage over 1000 businesses to prepare for and participate in the low-carbon economy. Case studies from a sampling of 78 Climate Smart businesses show a total **annual cost savings of $2.6 million**.

Climate Smart also links SMEs to global impacts through harnessing the power of SME derived data to inform estimates of emissions from SMEs at different geographical scales, through our Business Energy and Emissions Profiles (BEEPs). Climate Smart was awarded the Grand Prize in the 2016 MIT Climate CoLab contest and was judges' choice in 2018 for our BEEPs. We have produced BEEPs for cities across Canada and the US. Our goal is to produce 100 BEEPs across North America.

1000+

Climate Smart certified businesses to date (trained or in training)

5,148,000+

Total emissions measured by Climate Smart to date, in tonnes (t) CO_2e

24%

Average reduction if businesses see a reduction between two years

$397

Projected cost savings to a business, per tonne CO_2e reduced

Canadian Mennonite University's 2021 fiscal year carbon footprint

This report details the greenhouse gas emissions footprint for Canadian Mennonite University ("CMU") during the 2021 fiscal year, including the breakdown of emissions by source activity and CMU's plan to reduce their emissions going forwards. This report and inventory were compiled in compliance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Revised Edition.

Compared to their 2017 baseline, CMU have reduced their emissions by:

38%

CMU are working to reduce their GHG emissions from:

Electricity,

Heating &

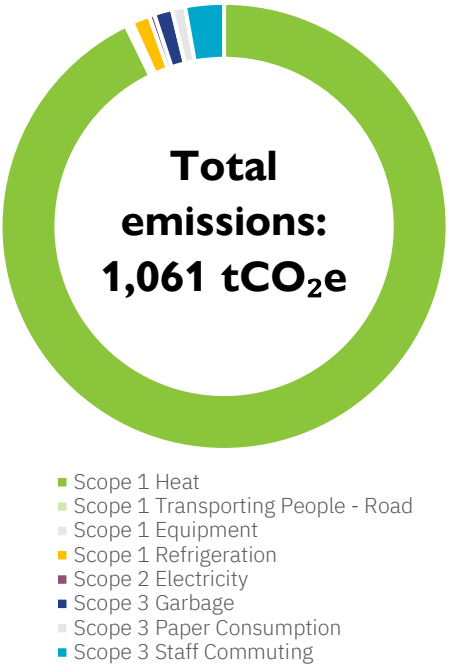
Employee Engagement

CMU's reductions against their baseline are equivalent to 135 fewer passenger vehicles driven for a year[1].

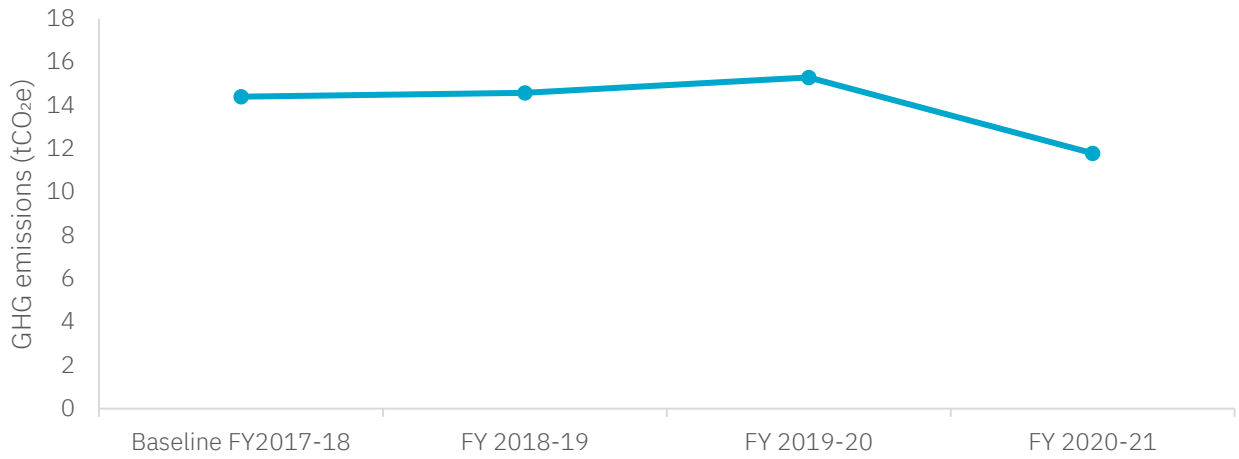
135 vehicles driven for one year

[1]Source: EPA Greenhouse Gas Equivalencies Calculator

Total emissions for the 2021 fiscal year



Total emissions from baseline to the 2021 fiscal year per fulltime employee



Analysis

CMU measured its 4th greenhouse gas inventory with Climate Smart for the 2021 fiscal year (May 1, 2020, to April 30, 2021) and recorded emissions of 1,060.70 tonnes of carbon dioxide equivalent (tCO_2e). Overall, CMU's **emissions decreased by 38% (638.57 tCO_2e) since their baseline year** (2017-2018), with most of the reductions occurring in air travel and heating. CMU is Climate Smart certified for 2022.

The following sections present the breakdown of CMU's emissions for their 2021 fiscal year inventory by scope, as well as details of any emissions of CO_2 from combustion of biologically sequestered carbon and purchased offsets and renewable energy certificates (RECs).

Scope 1

Scope 1 emissions totalled 1002.91 tCO_2e in CMU's 2021 fiscal year, **down by 15% since their baseline year**.

Activity	Baseline FY2017-18 (tCO2e)	FY 2020-21 (tCO2e)	Absolute Change (tCO_2e)	% Change	Justifications & Additional Notes
Scope 1					
Heat	1,078.76	983.85	-94.91	-9%	As a result of Covid closures
Transporting People - Road	31.58	2.51	-29.07	-92%	Due to the Outtatown program being eliminated
Equipment	3.72	2.92	-0.79	-21%	Year over year variation
Refrigeration	68.86	13.62	-55.23	-80%	Due to the high top up during 2017-2018
Grand Total	**1,182.91**	**1,002.91**	**-180.00**	**-15%**	

Scope 2

Scope 2 emissions totalled 4.15 tCO_2e in CMU's 2021 fiscal year, **down by 61% since their baseline year**.

Activity	Baseline FY2017-18 (tCO2e)	FY 2020-21 (tCO2e)	Absolute Change (tCO_2e)	% Change	Justifications & Additional Notes
Scope 2					
Electricity	10.69	4.15	-6.55	-61%	As a result of Covid closures and the change in MB grid factor change
Grand Total	**10.69**	**4.15**	**-6.55**	**-61%**	

Market based emission factors

The 2015 GHG Protocol Scope 2 guidance requires companies to report their Scope 2 emissions in two ways: **location-based** (reflecting grid emission factors), and **market-based** (using supplier specific emissions factors and/or those from contractual instruments such as renewable energy certificates - RECs). The table below shows emissions from purchased electricity calculated using these two methods. Note that location-based values were used to calculate the baseline year scope 2 emissions and are shown on the emissions summary charts presented in this report.

	Category of instruments	kWh	Total tCO_2e
Location-based Calculation[1]	Provincial average	2,532,832	4.15
Supplier Specific Market-based Calculation[2]	MB Hydro	2,532,832	3.17

Scope 3

Scope 3 emissions totalled 53.64 tCO_2e in CMU's 2021 fiscal year, **down by 89% since their baseline year**.

Activity	Baseline FY2017-18 (tCO2e)	FY 2020-21 (tCO2e)	Absolute Change (tCO_2e)	% Change	Justifications & Additional Notes
Scope 3					
Garbage	27.47	13.78	-13.69	-50%	
Paper Consumption	16.76	10.18	-6.58	-39%	As a result of Covid closures
Staff Commuting	75.73	29.68	-46.04	-61%	
Transporting People - Air	385.70	0.00	-385.70	-100%	
Grand Total	**505.65**	**53.64**	**-452.01**	**-89%**	

Release of sequestered carbon

Direct CO_2 emissions arising from the combustion of biologically sequestered carbon, such as from burning biomass or biofuels, are reported seperately from the scopes. For CMU's 2021 fiscal year inventory, there was no reported release of sequestered carbon.

Offsets & renewable energy certificates

CMU did not purchase offsets or renewable energy certificates in 2021.

[1] Emission Factor based on Environment and Climate Change Canada: National Inventory Report, 2020.
[2] Emission Factor based on MB Hydro from electricity generation, 2018.

CMU's emissions reduction plan

To date, CMU has worked to minimize their emissions by focusing on strategies aimed at electricity, heating, transportation. CMU's current reduction plan is shown below.

Category	Strategy	Considering	Planned	Implemented
Electricity	Make use of natural lighting as much as possible	■		
	Use standby settings on electronics	■		
	Set computers to power saving mode	■		
	Put up signage to help people remember to turn off lights and equipment	■		
	Regularly monitor your usage through your online account with your utility provider to identify inefficiencies	■		
	Implement a policy that all office-based equipment and lighting is turned off when not in use	■		
	Implement a policy that all non-office-based equipment is turned off when not in use	■		
	Replace incandescent lightbulbs with light-emitting diodes			■
	Replace fluorescent tube lighting with LED tubes			■
	Replace older fluorescent lighting with higher-efficiency models			■
	Purchase/install energy efficient office equipment as old ones expire			■
	Replace desktop computers with laptops at their end of life	■		
	Install occupancy sensors in common areas	■		
	Use variable-frequency drives (VFD) to improve efficiency	■		
	Applied for a grant with Heritage Manitoba to develop a conservation plan for the Heritage Designated building with the highest electricity usage. This plan would look to explore where the consumption is coming from and plan for reductions.		■	
Heat	Ensure bay doors in warehouses and workshops are closed when not in use		■	
	Implement a regular maintenance program			■
	Check settings on programmable thermostats (if installed) so that heat is turned down in the evenings and on weekends	■		
	Install programmable thermostats	■		
	Insulate piping	■		
	Assess condition of weather stripping and install new as needed	■		

Category	Strategy	Considering	Planned	Implemented
	Substitute electric heat in the place of natural gas in cases where temperature throughout your space is uneven	■		
	Install energy efficient windows	■		
	Install or upgrade building insulation	■		
	Applied for a grant with Heritage Manitoba to develop a conservation plan for the Heritage Designated building. This plan would look to explore opportunities for increased insulation and efficiency in a building that can not be addressed in conventional ways.		■	
Transportation	Engage employees to consider lower carbon modes of travel where possible for business trips		■	
	Promote carpooling to work by installing a ride share board or facilitating participating in local carpooling program		■	
	Promote public transit by providing (discounted) transit passes to employees	■		
	Reduce business travel using teleconferencing / videoconferencing	■		
	Participate in Ride-to-Work Week or similar programs	■		
	Provide bicycle parking			■
	Provide EV charging stations	■		
	Provide shower facilities	■		
	Provide change room(s)	■		
	Implement a regular vehicle maintenance program			■
	Purchase or lease electric vehicles	■		
Paper	Put up signage to increase staff paper awareness	■		
	Re-use paper			■
	Purchase paper with recycled content			■
Waste	Increase waste diversion from landfill through improved signage and other employee engagement activities	■		
Water	Install faucet aerators on high-use taps			■
	Install low-flow toilets	■		
	Install rainwater harvesting system for specific operations	■		
Employee engagement	Communicate to staff why your company is getting Climate Smart certified and how they can get involved	■		
	Solicit ideas for greening operations from staff	■		
	Install a green board to communicate GHG emissions reduction initiatives and other sustainability-related activities	■		

Category	Strategy	Considering	Planned	Implemented
	Establish an employee green team to help develop and coordinate GHG emissions reduction initiatives			
	Develop and include sustainability policy in operations and/or employee manual			
	Regularly report to staff on GHG emissions reduction initiatives and progress			
	Looking to add a Sustainable CMU tab on our website to track the Climate Smart program. Where students, staff and faculty can find information on upcoming events, plans and ways they can contribute to CMU's sustainability initiatives.			

Going forwards, CMU will continue to work to reduce their emissions through strategies aimed at heating, transportation, and staff engagement.

Methodology

As a Climate Smart certified business, CMU conducted its GHG emissions inventory according to the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Revised Edition. The GHG Protocol is an internationally recognized standard published by the World Resources Institute and the World Business Council on Sustainable Development.

Organizational Boundaries

CMU used the operational control approach to determine its organizational boundary and included in its inventory all facilities over which it has operational control. The data captured in CMU's inventory corresponds to their operations at **500 Shaftesbury Blvd., Winnipeg, MB, R3P 2N2**

Inventory Boundaries

The GHG Protocol requires the inclusion of Scope 1 and 2 emissions and suggests including Scope 3 emissions from activities relevant to an organization's business and goals, and for which reliable data can be obtained. CMU included emissions from the following activities under Scopes 1, 2 and 3:

- Scope 1: includes direct GHG emissions from sources that are owned or controlled by the reporting company or organization
    - fuel consumed by company owned vehicles
    - natural gas for heating
- Scope 2: includes indirect GHG emissions from purchased electricity and purchased heat
    - purchased electricity
- Scope 3: includes indirect GHG emissions that are consequences of the reporting company's operations but occur at sources owned by another company
    - business travel

- garbage
- paper consumption
- staff commuting

Scope 3 emissions from student commute and third-party shipping data has been excluded from this inventory.

Emission factors

This inventory was conducted using the emissions factors from the Climate Smart web-based greenhouse gas management tool. The Climate Smart GHG management tool was designed for adherence to the GHG Protocol. Climate Smart's emission factors come from a variety of sources, such as Environment Canada, the GHG Protocol Initiative, the US Environmental Protection Agency and the Intergovernmental Panel on Climate Change. Climate Smart reviews its emission factors annually to update them based on refined industry methodology and changing electricity grids.

Climate Smart also acknowledges that complete adherence to the Protocol requires the seven major greenhouse gases to be accounted for separately and is working towards adding this feature at a future date. Further details on Climate Smart's emission factors, their sources, and methodology for updating them are available upon request to info@climatesmartbusiness.com.

Sources of data included

CMU used the following sources of data to estimate their greenhouse gas emissions for the 2021 fiscal year:

Activity	Data source
Electricity > Purchased	The total kilowatt-hours of electricity used, based on utility bills, were entered into the Climate Smart software tool.
Heat > Generated	The total giga-joules of natural gas used were entered based on utility bills.
Transporting People > Vehicles you own > Road	The total litres of fuel used were entered.
Staff Commuting	The distance commuted by each mode of transport was entered based on staff commuting survey.
Equipment > Equipment you own	The total litres of fuel used by equipment were entered.
Garbage	The total estimated weight of garbage was entered into the Climate Smart tool.
Paper Consumption	The paper type, paper bond weight, number of reams used and post-consumer recycled content were entered. The paperweight and paper type were entered into the paper calculator (http://papercalculator.org) to calculate emissions.
Refrigeration	The total weight of refrigerant top-ups was entered based on maintenance invoices.

Recalculation

Climate Smart recommends a recalculation of baseline emissions if a change occurs that would equate to a change equal to or greater than five percent of company's total annual emissions. Situations triggering recalculation include structural changes (e.g. the acquisition or divestment of business units); changes in calculation methodology or improvements in accuracy of emission factors/activity data; or discovery of significant or cumulative errors.

During the review of CMU's 2018 & 2019 fiscal year inventories, there was an error found in the garbage and equipment data reporting methodology. As a result, the emissions have been recalculated for the baseline fiscal 2017-2018 inventory. Furthermore, a decision was made to exclude the MSC 13 location from the future inventories due to lack of operational control at this location. To maintain consistency of the reporting, the baseline emissions for this location has been taken out of the inventory.

Overall, all these changes didn't result in more than 5% change in the overall inventory but the recalculation was completed regardless to maintain the consistency of the data methodology year over year. See the table below for the impact of these recalculation:

Recalculated inventory	Category impacted	tCO2e Before recalculation	tCO2e After recalculation
Baseline FY2017-18	Garbage	6.34	27.47
	Equipment - Diesel	6.62	3.72
	Electricity emissions - MSC 13	0.06	0.00
	Total inventory emissions	1681.40	1699.26
	% Difference after changes	1%	

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