

CMU

Greenhouse Gas Emissions Report for the 2018 Fiscal Year

May 1, 2017 to April 30, 2018



Contents

CMU's 2018 fiscal year carbon footprint	2
Analysis.....	3
CMU's emissions reduction plan	5
Methodology	7

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 (CO₂e): 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 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 close to 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.

950+

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

5,148,000+

Total emissions measured by Climate Smart to date, in tonnes (t) CO₂e

21%

Average reduction if businesses see a reduction between two years

\$397

Projected cost savings to a business, per tonne CO₂e reduced

1

measure

2

reduce

3

leverage



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CMU's 2018 fiscal year carbon footprint

This report details the greenhouse gas emissions footprint for CMU during the 2018 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.

CMU is working to reduce their GHG emissions from:

Heating
Transportation
&
Electricity

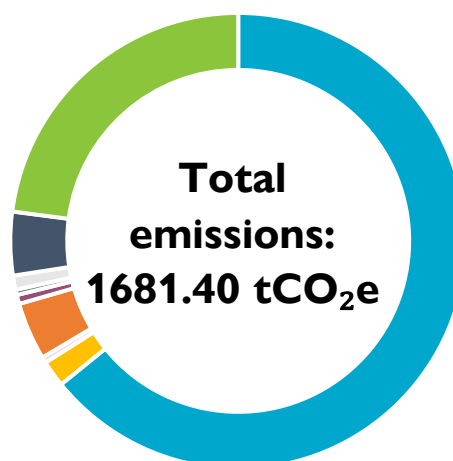
CMU's GHG emissions in their 2018 baseline fiscal year are equivalent to 6,616,000 km driven by a passenger car¹.

6,616,000 km



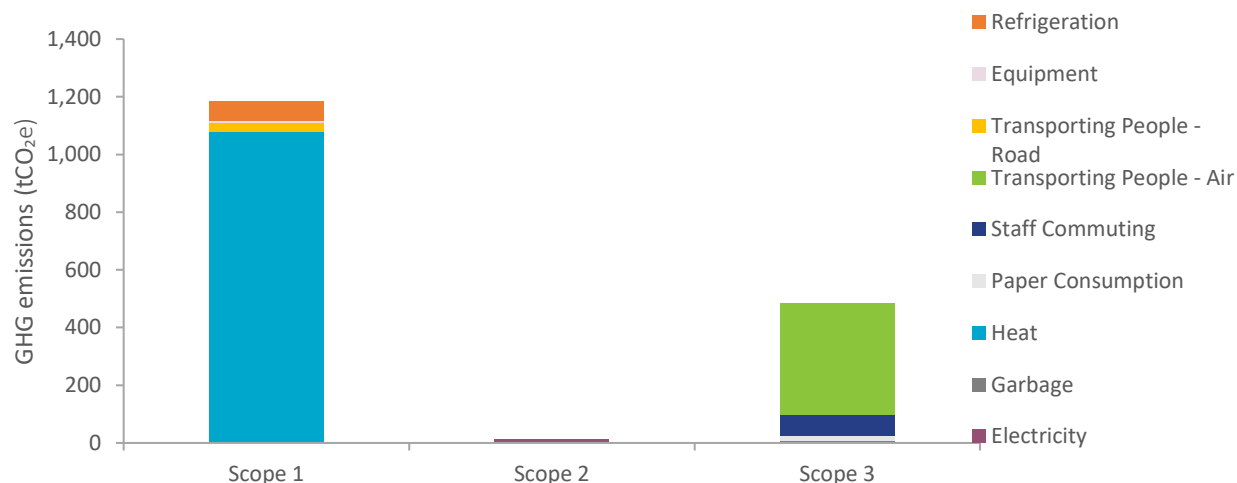
¹Source: [EPA Greenhouse Gas Equivalencies Calculator](#)

Total emissions for the 2018 fiscal year by activity



- Scope 1 Heat
- Scope 1 Transporting People - Road
- Scope 1 Equipment
- Scope 1 Refrigeration
- Scope 2 Electricity
- Scope 3 Garbage
- Scope 3 Paper Consumption
- Scope 3 Staff Commuting
- Scope 3 Transporting People - Air

Total emissions by scope



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3

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Analysis

CMU measured its first greenhouse gas inventory with Climate Smart for the 2018 fiscal year (May 1, 2017 to April 30, 2018) and recorded emissions of 1,681.40 tonnes of carbon dioxide equivalent (tCO₂e). Overall, CMU's largest emissions sources were **Heat** (64%) and **Air travel** (23%). CMU is Climate Smart certified for 2020.

The following sections present the breakdown of CMU's emissions for their 2018 fiscal year inventory by scope, as well as details of any emissions of CO₂ from combustion of biologically sequestered carbon and purchased offsets and renewable energy certificates (RECs).

Scope 1

Scope 1 emissions totalled 1186.12 tCO₂e in CMU's 2018 fiscal year:

Activity	Baseline FY2017-18 (tCO ₂ e)	% of emissions
Scope 1		
Heat	1,078.76	64.16%
Transporting People - Road	31.58	1.88%
Equipment	6.62	0.41%
Refrigeration	68.86	4.10%
Grand Total	1,186.12	70.54%

Scope 2

Scope 2 emissions totalled 10.76 tCO₂e in CMU's 2018 fiscal year:

Activity	Baseline FY2017-18 (tCO ₂ e)	% of emissions
Scope 2		
Electricity	10.76	0.64%
Grand Total	10.76	0.64%

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 are shown on the emissions summary charts presented in this report.

	Total kWh	Category of instruments	kWh	Total tCO ₂ e
Location-based Calculation ¹	3,072,557	Provincial average	3,072,557	10.76
Supplier Specific Market-based Calculation ²		MB Hydro	3,072,557	3.84

¹ Emission Factor based on Environment and Climate Change Canada: National Inventory Report, 2017.

² Emission Factor reported by MB Hydro, 2018

Scope 3

Scope 3 emissions totalled 484.53 tCO₂e in CMU's 2018 fiscal year:

Activity	Baseline FY2017-18 (tCO ₂ e)	% of emissions
Scope 3		
Staff Commuting	75.73	4.50%
Garbage	6.34	0.38%
Paper Consumption	16.76	1.00%
Transporting People - Air	385.70	22.94%
Grand Total	484.53	28.82%

Release of sequestered carbon

Direct CO₂ emissions arising from the combustion of biologically sequestered carbon, such as from burning biomass or biofuels, are reported separately from the scopes. For CMU's 2018 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 2018 baseline fiscal inventory.



CMU's emissions reduction plan

Based on their 2018 fiscal year inventory, CMU will work to minimize their emissions by focusing on strategies aimed primarily at heating, transportation, and electricity. 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 make a 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			
	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.			

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Category	Strategy	Considering	Planned	Implemented
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 through the use of 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			
	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.			

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 MSC restaurant was excluded from this inventory.

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; and
 - 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 six 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 2018 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 liters of fuel & the total distance travel with the vehicle type were entered.
Transporting People > Vehicles owned by others > Air	The total kilometers travelled were entered by type of flight (short-, medium-, or long-haul).
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.

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