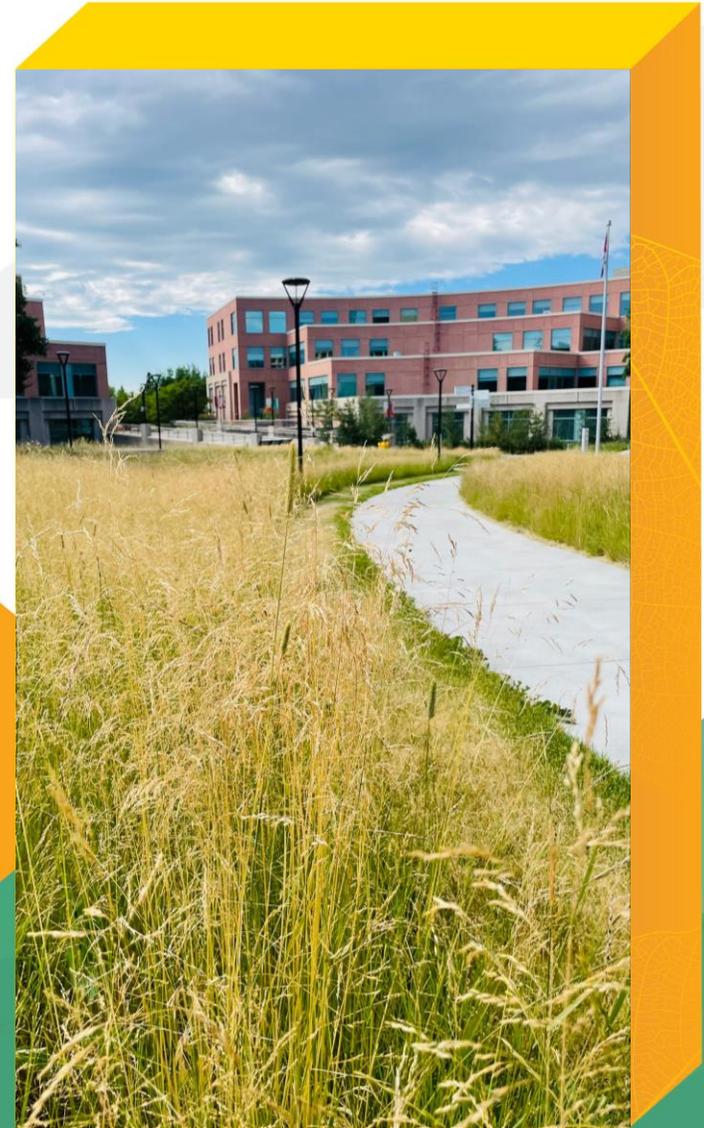


MOBILIZING ALBERTA

Greenhouse Gas Calculators & Tools



This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'aide financière de :



Environment and
Climate Change Canada

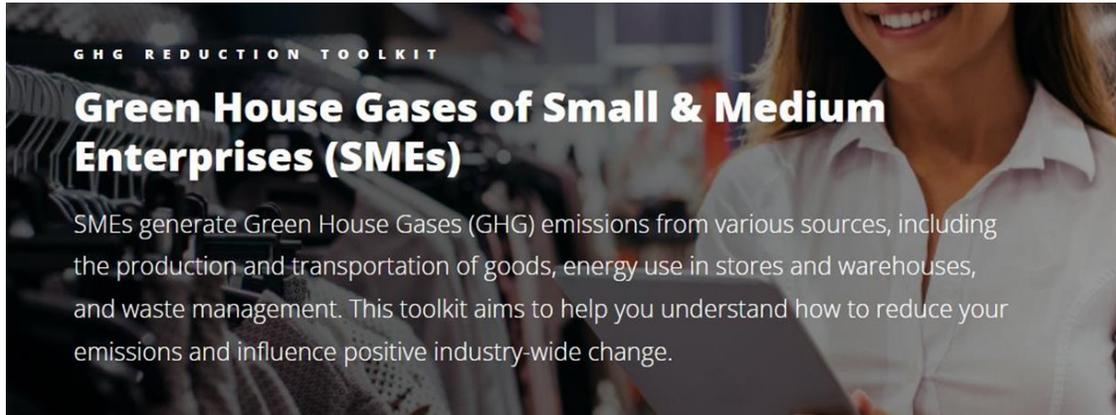
Environnement et
Changement climatique Canada

Greenhouse Gas Emissions Calculators & Tools



- Greenhouse gas (GHG) calculators and tools are resources that help individuals, organizations, businesses, and countries estimate their total greenhouse gas emissions - also known as a carbon footprint - so they can take action to reduce their GHG emissions.
- GHG tools can be helpful, however they do not consider the underlying systemic causes (including economic, political, and social) that drive high levels of GHGs. GHG tools typically offer individual choices one can make to reduce GHGs, but they do not consider the inequities embedded in these capitalistic and colonial systems that make many of these 'choices' inaccessible. ([Ursula Wolfe-Rocca, 2023, Ecological footprint calculators are bad for the environment. RethinkingSchools: https://rethinkingschools.org/articles/ecological-footprint-calculators-are-bad-for-the-environment/](https://rethinkingschools.org/articles/ecological-footprint-calculators-are-bad-for-the-environment/))
- At a national level, calculating emissions does not consider the dynamic of emitting large GHGs to produce goods that are transported to be consumed by financially wealth countries. (Climate Change Performance Index, 2024,*Historical Responsibility for the Climate Crisis: The Roots of the Unfair Imbalance.* <https://ccpi.org/historical-responsibility-for-the-climate-crisis-the-roots-of-the-unfair-imbalance/>)

ECO Canada

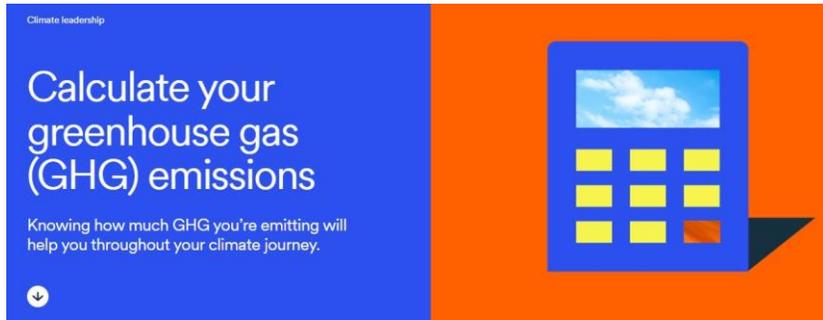


To access toolkit, visit: <https://eco.ca/educators/ghg-reduction-toolkit/>

GHGs of Small & Medium Enterprises (SMEs) - Emissions Reduction Toolkit

- The toolkit provides guidance on reducing greenhouse gas emissions by:
 - Optimizing production processes;
 - Increasing the efficiency of transportation;
 - Streamlining distribution networks;
 - Increasing the efficiency of facilities heating and lighting systems;
 - Reducing energy use in facilities;
 - Utilizing renewable energy sources to power facilities operations; and
 - Investing in energy-efficient technologies.

Business Development Bank of Canada (BDC)



To access resource, visit: <https://www.bdc.ca/en/articles-tools/sustainability/climate-action-centre/calculate-greenhouse-gas-emissions>

BDC provides information on how to calculate a company's GHG emissions. This is shown by providing a roadmap to calculating GHG emissions by:

- Choosing a carbon accounting standard,;
- Collecting emissions data;
- Calculating actual emissions;
- Reporting data; and
- Making a GHG reduction plan.

Environment and Climate Change Canada

GHG Calculator for Organic Waste Management

- This tool helps municipalities, project developers, waste generators, and other users to estimate the impact on GHG emissions for different organic waste management approaches.



To access resource, visit: <https://eco.ca/educators/ghg-reduction-toolkit/>

Municipal Climate Change Action Centre (MCCAC)



How to calculate greenhouse gas emissions

January 25, 2021

4-minute read

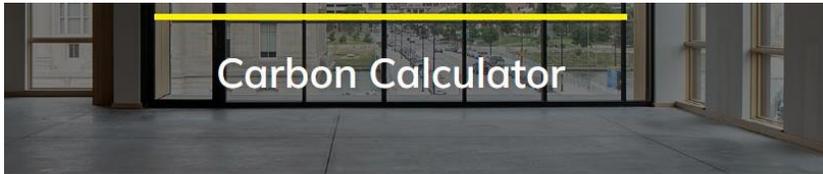
Follow this simple approach for calculating emissions reductions to understand your carbon impact.

To access resource,
visit: <https://mccac.ca/2021/01/25/how-to-calculate-greenhouse-gas-emissions/>

Basic Method for Calculating GHG Emissions

- MCCAC offers a method and supporting resources to calculate the GHG emissions of potential municipal projects (e.g., building or an asset that has yet to be constructed).

Canadian Wood Council (CWC)



Are you interested in learning about the carbon benefits of your wood building? After inputting wood volumes, the tool estimates how much time it takes Canadian and U.S. forests to grow that volume of wood along with the associated carbon benefits – both the amount of carbon stored and the amount of greenhouse gas emissions avoided. Follow the instructions on each input tab of this easy-to-use calculator tool to find out the estimated carbon benefits of your building project.



1. Construction Type 2. Lumber 3. Mass Timber 4. Panels 5. Engineered Wood Products 6. Decking

1 of 7
Construction Type [?]

Construction type:

Displacement factor:

Compared with other functionally equivalent buildings made of non-wood materials, wood-frame buildings typically generate less embodied GHG emissions during their life cycle. In other words, there are fewer GHG emissions associated with a wood-frame building than other building types. This difference can be quite large and can be taken as a carbon credit for the amount of CO₂ emissions that were avoided (displaced) by choosing wood over other more GHG-intensive materials.

Reference

- Light-frame** [?]
Low-rise or mid-rise
- Post and beam** [?]
Low-rise or mid-rise
- Mass timber** [?]
Low-rise, mid-rise or high-rise
- Combination** [?]
Mass timber/light-frame/post &

Calculate the Carbon Benefits for a Wood Building

To learn about the carbon benefits of a wood building, this tool provides an estimate of how much time it takes Canadian and U.S. forests to grow that volume of wood along with the associated carbon benefits (carbon stored and the amount of greenhouse gas emissions avoided) for a wood building.

To access resource, visit: <https://cwc.ca/design-tool/carbon-calculator/>

Biological Carbon Canada

Farm Name _____			
Greenhouse Gas Scope One and Two Net Emissions Report			
For the Year Ending (Month, Day, Year)			
Source	(A) Amounts	(B) Emission Factor ¹	(A x B) Estimated Emissions per year
Livestock CH₄ Enteric			
Dairy Cattle	#	142.93 kg	kg
Non-Dairy Cattle	#	71.05 kg	kg
Sheep	#	8 kg	kg
Swine	#	1.5 kg	kg
Poultry	#	NE (0)	0
Horses	#	18 kg	kg
Not Listed Animals	#	Consult Background Tables	kg
Total CH ₄ (Enteric) Emissions from Livestock			(A) kg
Livestock CH₄ Manure			
Dairy Cattle	#	38.92 kg	kg
Non-Dairy Cattle	#	3.73 kg	kg
Sheep	#	0.28 kg	kg
Swine	#	4.82 kg	kg
Poultry	#	0.05 kg	kg
Horses	#	2.6 kg	kg
Not Listed Animals	#	Consult Background Tables	kg
Total CH ₄ Emissions (Manure) from Livestock			(B) kg
Livestock N₂O Manure			
Dairy Cattle	#	0.91 kg	kg
Non-Dairy Cattle	#	0.70 kg	kg
Sheep	#	0.04 kg	kg
Swine	#	0.01 kg	kg
Poultry	#	0.01 kg	kg
Horses	#	0.48 kg	kg
Not Listed Animals	#	Consult Background Tables	kg
Total N ₂ O Emissions (Manure) from Livestock			(C) kg

- The ESG Emission Calculator Tool is used for measuring Scope 1,2, and 3 of farms through a Farm Scope Manual Spreadsheet.
- Measures CO² emissions of livestock, operational chemicals (e.g., nitrogen), energy sources, and land/soil sinks.
- To access resource, visit: <https://biologicalcarbon.ca/>

Green Calgary

Energy Efficient Future

[CLICK TO SEE A LIST OF AVAILABLE WORKSHOPS](#)

What does energy efficiency look like at home?

It doesn't have to be complicated! Energy efficiency can be as simple as shifting a few of our daily habits or introducing small, but impactful, upgrades to our homes.

Green Calgary and ENMAX are excited to present a free community workshop to help you understand your home energy use and take steps towards energy efficiency. During the 60-minute workshop, we will guide you through creating a custom action plan to:

- Create a more energy efficient home
- Reduce your impact on climate change
- Better understand your utility bill!

This program is made possible through the generous support of ENMAX, with additional support from Alberta Ecotrust. **Workshops are available at no cost for community groups and associations in Calgary**, and ESL presentations are available.

Contact us for more information or to book a free workshop for your community!

Upcoming workshops

Green Calgary hosted virtual sessions

- Wednesday, May 17, 2023 @ 7-8 pm
- Thursday, June 22, 2023 @ 7-8 pm

[REGISTER HERE TODAY](#)

*Forgot to register? **Join us through Microsoft Teams** today!

Energy Self-Audit Kit

An additional feature has been incorporated into the Energy Efficiency Future program: [the energy self-audit kit](#). This kit can be rented at no cost and is available to both, homeowners and renters for their use.

[TO REQUEST A KIT CLICK HERE](#)



Energy Efficiency for Homes

- Green Calgary offers workshops, resources and an energy self-audit kit to help reduce GHG emissions in your home.

To access resource, visit: <https://www.greencalgary.org/programs/green-homes-communities/energy-efficient-future>

The Nature Conservancy

Calculate Your Carbon Footprint

The screenshot shows the 'Calculate Your Carbon Footprint' interface. At the top, there is a navigation bar with icons for 'Get Started', 'Travel', 'Home', 'Food', 'Shopping', 'Your Footprint', and 'Take Action'. Below this is a 'Get Started' button with a CO2 icon. The main section is titled 'START WITH A QUICK CARBON FOOTPRINT ESTIMATE' and includes a dropdown menu for location (Zipcode, State, City, County, Country) and an input field for 'Enter your location'. Below the input field, there are two sliders: one for 'How many people live in your household?' (ranging from 1 to 5+, with an average of 2.5) and one for 'What is your approximate gross annual household income?' (ranging from <10k to 120k+, with an average of <10k). A green 'NEXT' button is positioned below the sliders. At the bottom, a summary table shows the results: 'Your Total Footprint' is 49 tons CO2/year, 'Similar Households' is 49 tons CO2/year, and the comparison is 'Better than Average' (0%). The footer includes 'Powered by CoolClimate' and links for 'Terms of Use' and 'Documentation'.

49 tons CO ₂ /year	49 tons CO ₂ /year	0%
Your Total Footprint	Similar Households	Better than Average

Individual Carbon Footprint Calculator

- This interactive tool helps individuals to learn more about how their current activities contribute to GHG emissions and ways they can reduce their carbon footprint.

To access resource, visit: <https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/>

References

- Biological Carbon Canada. *ESG Emission Calculator Tool*. <https://biologicalcarbon.ca/>
- Business Development Bank of Canada. *Calculate your greenhouse gas emissions*. <https://www.bdc.ca/en/articles-tools/sustainability/climate-action-centre/calculate-greenhouse-gas-emissions>
- Canadian Wood Council. *Carbon Calculator*. <https://cwc.ca/design-tool/carbon-calculator/>
- Climate Change Performance Index, 2024, *Historical Responsibility for the Climate Crisis: The Roots of the Unfair Imbalance*. <https://ccpi.org/historical-responsibility-for-the-climate-crisis-the-roots-of-the-unfair-imbalance/>
- Eco Canada <https://eco.ca/educators/ghg-reduction-toolkit/>
- Environment and Climate Change Canada: <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/waste-greenhouse-gases-canada-actions/calculator.html>
- Green Calgary. *Energy Efficient Future*. <https://www.greencalgary.org/programs/green-homes-communities/energy-efficient-future>
- Municipal Climate Change Action Centre. *How to Calculate Greenhouse Gas Emissions*. <https://mccac.ca/2021/01/25/how-to-calculate-greenhouse-gas-emissions/>
- The Nature Conservancy. *Carbon Footprint Calculator*. <https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/>
- Ursula Wolfe-Rocca, 2023, *Ecological footprint calculators are bad for the environment*. *RethinkingSchools*: <https://rethinkingschools.org/articles/ecological-footprint-calculators-are-bad-for-the-environment/>