

Greenhouse Gas Reporting for Small Businesses

INTRODUCTION



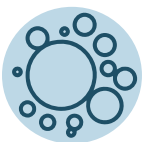
Climate change is one of the most important issues of our time. Climate models predict that a 4 °Celsius rise in average global surface temperature would likely be an unstable state, leading to unprecedented heat waves, droughts and floods across the world. Scientists hope that reducing greenhouse gas (GHG) emissions will limit the increase in average temperature to 2°C over the pre-industrial average. By developing a corporate GHG inventory, you will be able to understand both the direct and indirect impacts of your business' operations.

There are many ways to shrink your carbon footprint, and opportunities to reduce emissions will be specific to your particular business. Developing a GHG inventory provides insight into which parts of your business' operations are producing GHG emissions so that you can generate ideas for how to reduce them.

Quantifying and reporting your emissions will provide many other benefits for your business, including: saving money and improving your energy efficiency, building competitive advantage, managing risk, and building your reputation.

This document is a brief summary that introduces key concepts of greenhouse gas accounting for small businesses. It is part of the Small Business Guidance, which is a longer document that includes more detailed instructions for calculating and reporting emissions.

GREENHOUSE GASES



Gases that trap heat in the atmosphere are called **greenhouse gases** (GHGs). The GHGs covered in this guidance are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). Each GHG has

a different heat-trapping ability and lifetime in the atmosphere. The global warming effect of the various GHGs can be measured by applying specific **global warming potential** (GWP) values. GWP represents the heat-trapping impact of a GHG relative to carbon dioxide. All emissions are reported in metric tons of **carbon dioxide equivalent** (mt CO₂e) to provide a single metric that embodies all GHGs.

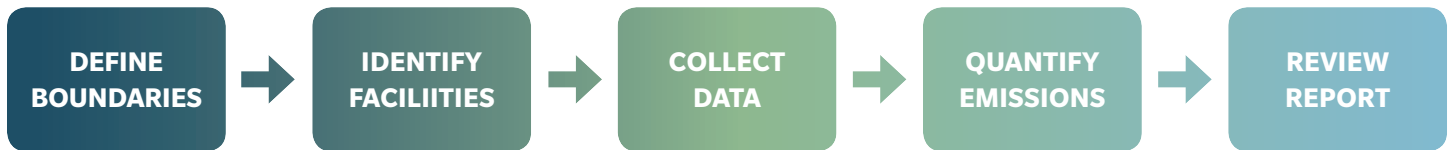
GREENHOUSE GAS INVENTORY

A **GHG inventory** is a list of your business' GHG emission sources and quantities. GHG inventories are generally broken down by facilities and further by particular types of emission sources in each facility. By breaking down your emissions in this way, you can get a clear picture of which sources are contributing to your emissions and develop a plan to reduce emissions throughout your whole business or at specific facilities.

Reporting your inventory to a GHG registry is an excellent way to get recognition for measuring, publicly reporting and verifying your greenhouse gas emissions. The Climate Registry (TCR) operates an established GHG reporting and verification program in North America. TCR members have access to hands-on technical assistance with their GHG measurement, reporting and verification, online calculation and reporting tools, and opportunities to network with other TCR members and policy leaders. TCR also offers members recognition for their carbon achievements through its website, public newsletter and social media platforms.



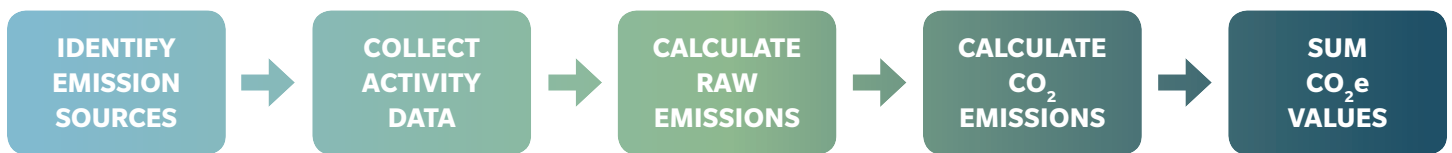
THE REPORTING PROCESS



The first step to reporting your GHG emissions is to define your organizational and reporting boundaries. An **organizational boundary** is the sum of the operations, facilities, and sources that make up your business. Organizations have the freedom to determine their own **reporting boundaries** based on which GHGs and emission sources are relevant to their operational and sustainability goals. The reporting boundary may match the organization boundary (i.e., all the emission sources within the organizational boundary are included) or may be a subset of the organizational boundary.

The next step is to identify all facilities within your reporting boundary and their associated emissions sources. Once you have identified which emission sources your business will report, you need to collect activity data for each source. **Activity data** is the measure of a level of activity that results in GHG emissions. Types of relevant activity data include records of fuel consumption, distance travelled, type of equipment, and utility bills. Then use that activity data to calculate GHG emissions following the process described below.

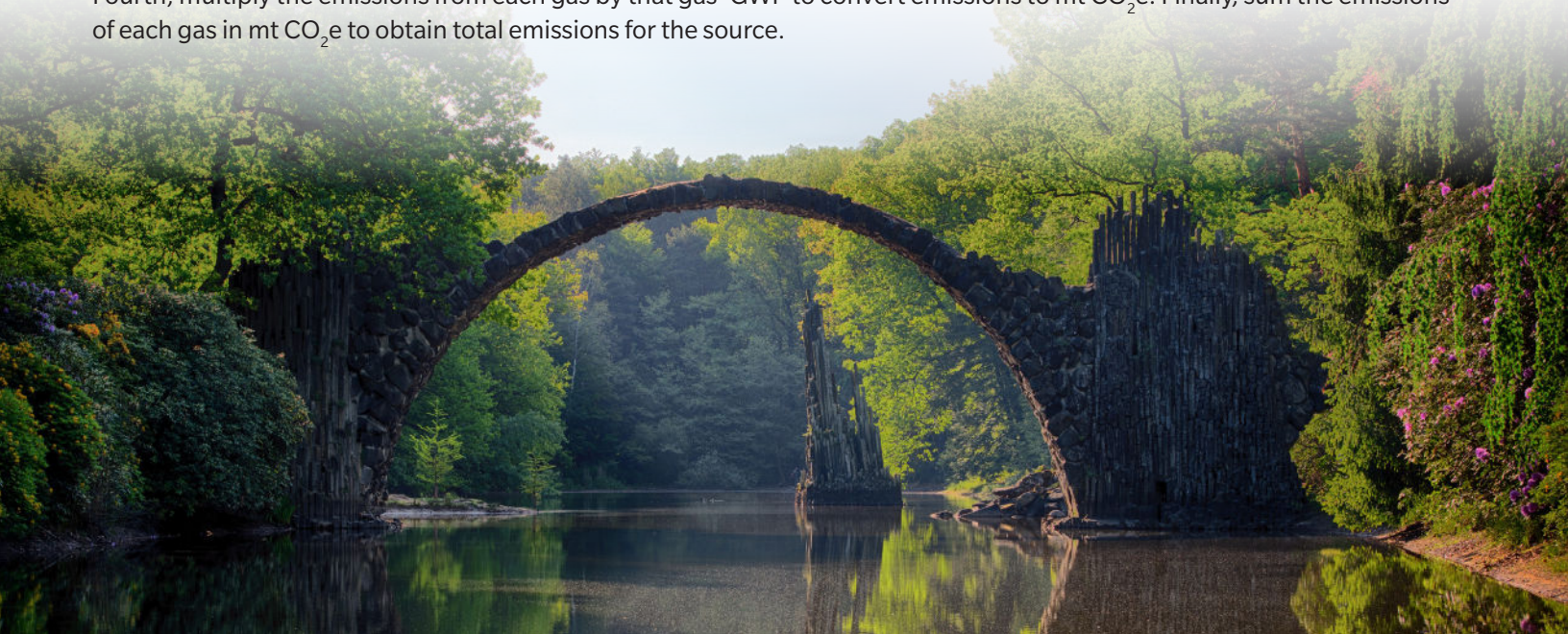
The final step is to review and publish your emissions report, either externally or internally. Verifying and publicly reporting your business' emissions clearly communicates your commitment to environmental leadership and accountability to your customers, investors, and regulators. Even if you keep your emissions report private, this information can help you find ways to reduce emissions and save money.

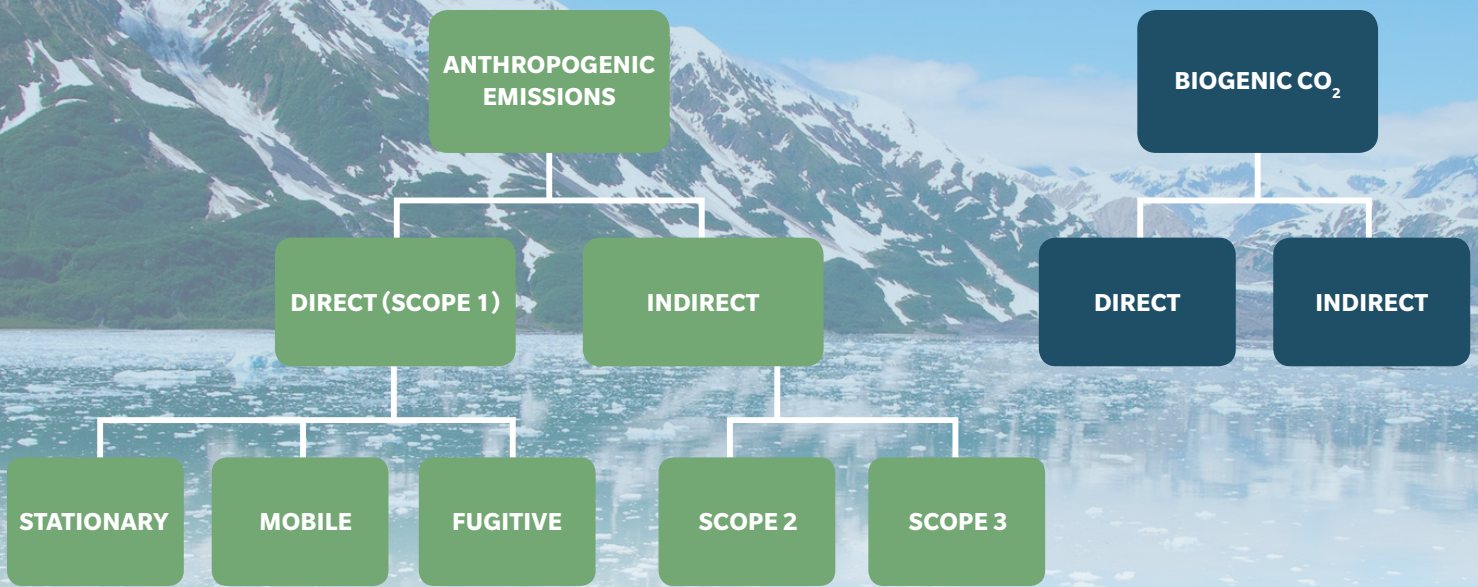


CALCULATING GHG EMISSIONS

There are five basic steps to calculate the GHG emissions from each of your sources. First, identify the emission sources you are going to report. Second, collect activity data for each source. Third, calculate raw emission quantities for each gas you are reporting by multiplying the activity data by the appropriate emission factor. **Emission factors** are metrics that describe how much of a GHG is emitted based on a measurable quantity of an activity (for example, metric tons of CO₂ emitted per kWh of electricity consumed). Fourth, multiply the emissions from each gas by that gas' GWP to convert emissions to mt CO₂e. Finally, sum the emissions of each gas in mt CO₂e to obtain total emissions for the source.




Note: Steps 3-5 can be done automatically with the help of TCR's Climate Registry Information System (CRIS).





ORGANIZING YOUR GREENHOUSE GAS INVENTORY

GHG emissions inventories are divided into two broad categories: direct and indirect. Direct emissions are those that your business physically emits into the atmosphere, such as CO₂ from a gasoline-fueled company vehicle, or HFCs or PFCs from an air conditioning unit. Indirect GHG emissions are those that your business influences but does not ultimately control. This means that the physical GHG emission source is not within your organizational boundary but your demand for the process that generated the emissions contributed to its release.

Direct Emissions 	Indirect Emissions 	Biogenic CO ₂ 
<p>Direct emissions are further divided into subcategories based on the types of sources they result from: stationary, mobile or fugitive. The most common types of stationary combustion sources for small businesses are the onsite combustion of liquid fuels such as natural gas for heat and hot water. The most common sources of mobile combustion emissions for small businesses are on-road vehicles and off-road vehicles such as those used in construction and landscaping. Fugitive emissions are GHG emissions that are released from equipment as a result of leaks or vents. The most common types of fugitive emission sources for small businesses include refrigeration, air conditioning and fire suppression systems. Together, these types of direct emissions constitute Scope 1.</p>	<p>Indirect emissions are divided into two subcategories. Indirect emissions associated with the consumption of purchased energy in the forms of electricity, steam, heat, or cooling are referred to as Scope 2 emissions. Your electricity purchases are an example of an indirect emission source. Although you do not own or operate the power plant that generates the emissions, your demand for the power is what drives the power generation process and resulting emissions. Since Scope 2 emissions typically make up a large portion of small businesses' GHG inventories, it can be a key area to implement emissions reduction strategies. All other sources of indirect emissions fall under Scope 3. The most common Scope 3 sources for small businesses include business travel, employee commuting, and shipping emissions.</p>	<p>Biogenic CO₂ emissions are generated during the combustion or decomposition of biologically-based material like wood or ethanol. Biogenic CO₂ emissions must be reported separately from other emissions reported within the Scopes because the carbon in biomass was recently contained in living organic matter. Small businesses might have biogenic CO₂ emissions if they use alternative fuels for their vehicle fleet.</p>

TURNING GHG DATA INTO CLIMATE ACTION



Review and verify

It is easy to make mistakes when compiling and calculating GHG emissions data, especially if it is an activity that is done infrequently using basic data management tools. An external review or audit, sometimes called **verification**, can help ensure that your GHG inventory is free of large errors that might result in decisions that would not have been made if the inventory had been accurate. Verification is an optional step in the reporting process that expresses your business' commitment to the GHG accounting principles of completeness, accuracy and transparency. It also improves your eligibility for various recognition programs such as TCR's Climate Registered™ program. It is important to understand that verification is an iterative process and is not a one-time evaluation of your inventory that results in a "pass" or "fail." If the verifier identifies errors, they will allow you to go back to the inventory or calculations and fix them.

The Climate Registry has a streamlined verification program called Batch Verification that reduces the financial and administrative burden on small businesses. TCR provides businesses with step-by-step instructions for collecting and providing the necessary information for the Batch Verification Body so that verification can run as smoothly as possible.



Invest in renewable energy

Beyond reducing your overall energy consumption through conservation and energy efficiency, one of the most effective ways to reduce your emissions from electricity consumption is to purchase renewable energy. As utility providers expand their renewable energy portfolios, they often offer programs in which customers can choose to purchase electricity products generated from renewable energy sources. Your current utility provider may already offer such a program. Opting in to a green energy program is one of the easiest ways to shrink your carbon footprint without affecting your operations.

Renewable energy generation results in the creation of **Renewable Energy Certificates (RECs)**, which provide proof of renewable electricity generation from a recognized renewable energy source and represent the rights to the environmental, social, and other non-power qualities of that renewable electricity generation. RECs can be bundled with the renewable electricity or sold separately (unbundled) to customers interested in supporting renewable energy.



Buy offsets

Once your business has done everything it can to reduce GHG emissions in-house, you may consider purchasing offsets to compensate for the emissions you cannot eliminate from your inventory. Carbon offsets represent the reduction, removal, or avoidance of GHG emissions from a specific project that is used to compensate for (i.e., offset) GHG emissions occurring elsewhere. Some offsets are higher quality than others, so it is important to make sure you buy high-quality offsets that represent real, permanent and additional emissions reductions.



Set reduction goals

Measuring your GHG emissions and building a GHG inventory is the essential first step in reducing your business' impact on the climate. Your first complete inventory is often used as a benchmark for setting and tracking progress toward an emissions reduction target. Setting an aggressive GHG target can motivate GHG reduction efforts at your business and often results in the identification of additional opportunities for reductions. Targets help drive efficiency and innovation to build resiliency for future resource scarcity and ultimately reduce costs. Setting and working to achieve GHG reduction targets are a way to demonstrate leadership and corporate responsibility to enhance brand reputation and investor confidence, improve employee morale and assist in the recruitment and retention of qualified employees.

Thank you for demonstrating your commitment to reducing your business' GHG emissions! For more information on the topics discussed here, please refer to the Small Business Guidance or TCR's General Reporting Protocol v. 3.0.

