GHG Carbon Footprint Accounting for organizations

SAMPLE 0NLY

This tutorial will give you an understanding of how to measure the GHG inventory and carbon footprint of an organization using recognized accounting standards and practices.

Syllabus

GHG accounting

Calculating a carbon footprint involves measuring the greenhouse gas (GHG) emissions which are a result of an organization's activities. It is the first step towards carbon neutrality and provides information to formulate emission reduction strategies.

A carbon footprint includes all emissions that are influenced by a company's decisions. This means that in addition to direct emissions, all indirect emissions are also included. For manufacturing companies this implies that the entire value chain is part of the Corporate Carbon Footprint and includes all emissions from the supply chain, logistics, usage phase and disposal of all products.

Calculating an organization's carbon footprint creates transparency and signals to their stakeholders such as employees, customers and investors that they are addressing the issue of climate change and informing the public of their sustainability actions. The steps are:

1. Nominate the GHG accounting standard to follow
2. Define organizational boundaries
3. Collect the data
4. Calculate the emissions
5. Document and analyze the emission results
6. Offset the emissions
7. Communicate your actions to stakeholders

The Corporate Protocol

The first step in calculating an organizational carbon footprint is to decide on the accounting method or standard to be followed. It is important to use a consistent method across different departments in an organization to ensure an accurate result. Standards provide guidance on the principles and requirements for reporting GHG emissions and verification. There are internationally recognized standard such as ISO 14064 for environmental management and ISO 14067 for reporting GHG emissions over the entire lifecycle of different products.
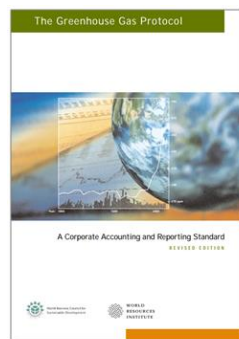
The Climate Change Institute recommends that companies follow the GHG Protocol Corporate Standard. It is an emissions accounting tool used by many businesses and organizations worldwide. More than 9 out of 10 Fortune 500 companies use the GHG Protocol. It provides the accounting platform for virtually every corporate GHG reporting program in the world and it establishes comprehensive global standardized framework for GHG emissions from private and public sector operations.

This process is the result of legislation passed in December, 2007 that directed the United States Environmental Protection Agency (EPA) to design a national, mandatory GHG emissions registry and was designed to help companies meet multiple reporting objectives.

You can download a copy of the GHG Corporate Standard to keep it in your files.

https://ghgprotocol.org/corporate-standard

The GHG Protocol is not a verification standard. It focuses only on accounting and reporting of GHG emissions. However, the Protocol does offer guidelines on how to develop your inventory in order to make it more amenable to verification. . A company or organization participating in a GHG program or registry would need to check to see whether the program requires verification of GHG inventories and what verifiers are certified.

Accounting Principals

The GHG Protocol is based on five principles:

1. Relevance: Ensure the GHG inventory appropriately reflects the GHG emissions of the organization and serves the decision-making needs of internal and external users.

2. Completeness: Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions. Emissions from leased assets that do not fall within an organization's boundary can be included in the inventory as scope 3 emissions sources.

3. Consistency: Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.

4. Transparency: Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.

5. Accuracy: Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

A GHG Statement is a quantified statement of an entity's GHG emissions over a particular period. GHG Statements have a variety of uses, including being used as part of Emissions Trading Schemes (ETS), with the main schemes currently having a worldwide value of more than USD 140 billion.

There is also a Global GHG Accounting and Reporting Standard for the Financial Industry which provides detailed methodological guidance for asset classes. Widely tested by banks and investors, these methods assist in the measurement and disclosure of GHG emissions resulting from activities in the real economy that are financed through lending and investment portfolio.

Organizational boundaries

This refers to defining which facilities are recognized as part of organization conducting the inventory and should be included within this inventory. The organizational boundary approach will help determine which operations to include that are not fully owned and operated by the reporting organization, such as leased office space or fleet vehicles.

Two approaches to defining organizational boundaries are:

- by which entity is in *control* of the emission
- according to *equity* share.

Under the control approach, an organization looks at facilities where it has authority to implement either financial or operational policies, then accounts for all GHG emissions from facilities where it does have control.

Under the equity share approach, the organization accounts for emissions from all facilities in which it has some equity interest (even a minority), but accounts for only a percentage of the total emissions equal to the share it has in the particular facility or sub-entity.

Operational boundaries refer to which operational activities at a facility are included in the inventory. Direct GHG emissions, or emissions that result from activities directly under an organizations control, such as combustion of fossil fuels to generate heat, are always included within the inventory. Indirect GHG emissions or emissions that result from the organization's activities but are generated outside the boundaries of the organization's direct control may be included.

Indirect emissions from electricity generation are always included and other indirect emissions, such as those resulting from employee travel in non-organization owned vehicles or commercial airlines are optionally included.

When using an operational control approach a general rule of thumb for leases suggests that if the organization has access to the data (e.g., pays the utility bills or purchases gasoline), those operations are under its control and should be included in the inventory as scope 1 or 2 emissions.

Checking boundaries will help determine priorities. Some emissions can be excluded, e.g. consumer travel to retail outlets to buy your products. Calculating a carbon footprint helps focus data collection on the main GHG emission sources and eliminate others.

Science-based targets

Science-based targets are goals developed by a business to reduce greenhouse gas emissions that align with what climate science says are necessary to meet the goals of the Paris Agreement. While many businesses, charities and public bodies have set carbon reduction targets, they are typically 5 year timeframes and not connected to climate science. Science-based targets provide companies with a clearly defined pathway by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

Science-based targets are developed by a business to provide it with a clear route to reduce greenhouse gas emissions. An emissions reduction target is defined as 'science-based' if it is developed in line with the scale of reductions required to keep global warming below 2C from pre-industrial levels.

Types of emissions

The GHG Protocol provides methods and guidelines for the calculation of GHG emissions and identifies three categories or scopes.

These scopes correlate to who 'owns' those emissions and the level of control applicable to changing those emission levels at each stage.

- Scope 1 - Direct emissions that result from operations that are owned or controlled by the reporting company;
- Scope 2 - Indirect emissions from the generation of items such as electricity, steam, heating, or cooling consumed by the reporting company
- Scope 3 – emissions that are more external to a specific organization which occur in the value chain of the reporting company, including both upstream and downstream
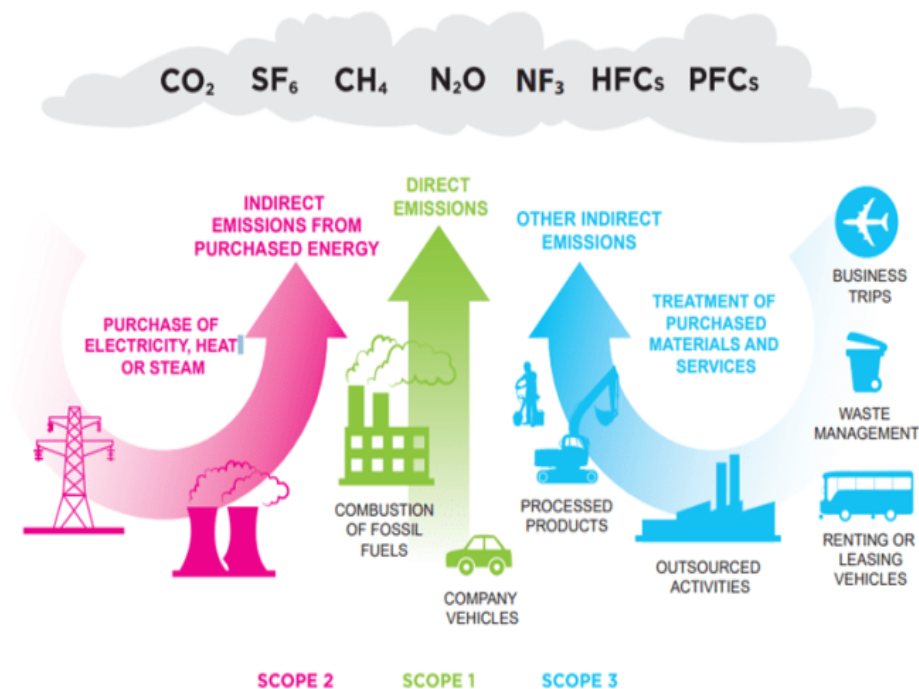
Scope 1 and 2 emissions are a mandatory part of reporting for many organizations across the world and relate to systems that are within reasonable control of an entity, such as onsite and purchased energy. However, for many organizations, the reduction of scope 3 emissions has the largest potential to reduce climate change.

Emission type examples

- Scope 1 emission: Building on-site energy use, Space heating, Building refrigerants, Company Vehicle Fuel consumed by owned and leased vehicles.
- Scope 2 emissions: Purchased electricity, steam, heating & cooling for own use.
- Scope 3 emissions: Purchased Goods and Services, Capital goods, Upstream and Downstream Transportation & Distribution, Business Travel (incl. Remote Working), Employee Commuting, Leased Assets, Waste Generated in Operations, Investments
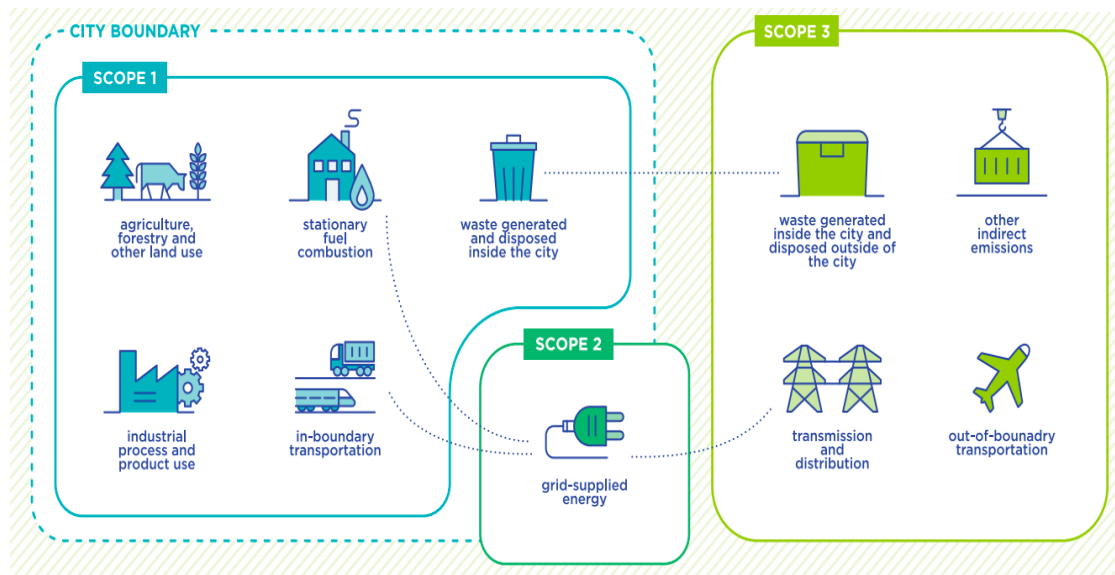
If there is a significant amount of customer transportation, i.e. taxis, shuttles, cars to and from an organization then these transportation emissions would be included in the Scope 3 section of your inventory. They may however, be hard to measure accurately given the large number of variables, e.g., which legs of the trip to include, the average distance per trip, the number of vehicles per day, the number of passengers per vehicle, the type of vehicles driven, etc.

Accounting for emissions resulting from the use of products or materials manufactured by a company can be problematic. According to the GHG Protocol Corporate Standard, emissions resulting from the use of sold products may be included as Scope 3 emissions in an inventory. However, since these emissions are often very difficult to quantify, the benefits of including them in a corporate inventory should first be weighed against the potentially high costs of collecting the data.

Emission factors

The release of GHG into the atmosphere depends mainly on the activity and the product. In order to estimate GHG emissions for each activity, we use a formula called an *emission factor*. An emission factor will allow you to convert *activity data*, such as the distance travelled by a company vehicle in a year, into GHG emissions.
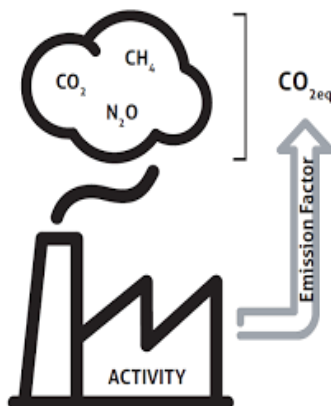
Most greenhouse gas emission factors are expressed as the Carbon dioxide equivalent (CO2e or CO2eq). It enables us to describe different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO2e signifies the amount of CO2 which would have the equivalent global warming impact. It allows "bundles" of greenhouse gases to be expressed as a single number – the CO2 equivalent. It should include each of the seven major GHGs: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3).

GHG emissions caused directly and indirectly by an organization, event or product, are measured in tonnes of CO2e and calculated using the activity data collated, such. It is then multiplied by the emissions factor for each activity.

You select the appropriate emission factor for each emission source in order to calculate the tonnes of CO2 emitted. Data must be consistent for the time period so if you were doing an annual footprint then all data must have the same boundaries. Carbon footprints are normally measured annually. Data will need to be gathered from different departments including finance, travel, logistics and operations. Essential data includes transport, energy bills and waste generation.

There are calculations tools are based on the GHG protocol available that were developed in partnership with industry experts and represent best practice quantification methodologies. There are also resources to help carry out the necessary emissions calculations on the GHG Protocol website.

Calculation tools use the emission factor which relates the amounts of greenhouse gases emitted by a business to a set amount of activity performed by that business. There are default values are provided for the emission factors in case businesses cannot develop custom values. A custom value, for example, would be the actual amount of CO2 used showing on a bill. You often only need only activity data, such as the amount of distance traveled, to in order to calculate vehicle emissions.

If you have the emission factor for any particular activity, such as electricity usage, then calculating the CO2e amount is a straight forward process. If your energy supplier give you utility bills showing the entire amount of CO2e that you consumed, you will not need to use an emission factor at all.

The Climate Change Institute provides emission factors which are averages based on the most extensive data sets available. They are largely identical to those used by the Intergovernmental Panel on Climate Change (IPCC), the premier authority on accounting practices at the national level.
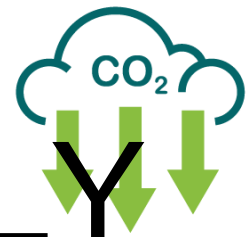
However, the GHG Protocol recommends that businesses should use custom values whenever possible. In other words, better to use data supplied by utility bills or by closely surveying your activities and processes, rather than relying on industry averages. This is because the industrial processes or the composition of fuels used by businesses may differ with time and by region.

THE EPA provides organizations with a regularly updated set of default emission factors for organizational greenhouse gas reporting. It includes updates to emission factors for upstream and downstream transportation, business travel, product transport and employee commuting, waste, and purchased electricity. Visit: https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub

For each particular source category, emissions calculations will generally rely on emission factors. For fuel consumption, published emission factors based on fuel energy content are generally more accurate than those based on mass or volume, except when mass or volume based factors have been measured at the company- or site-specific level. Quality investigations need to assess the representativeness and applicability of emission factors and other parameters to the specific characteristics of a company. Differences between measured and default values need to be qualitatively explained and justified based upon the company's operational characteristics.

Data collection

Carbon footprints capture greenhouse gas (GHG) emissions outputs on an annual basis. Data will need to be gathered from a variety of different sources including travel, logistics and operations in order to gather a full and accurate footprint.

You will need to understand what exactly needs to be included and set the boundaries of your footprint. Measurements should include 100% of Scope 1 direct and Scope 2 indirect emissions from your own operations (access our glossary for more detailed definitions), plus all material Scope 3 emissions which are indirect emissions from activities outside an organization's own operations.

Data collection for Scope 3 emissions involves multiple stakeholders and data sources. This makes them more challenging but Scope 3 emissions are important as they often account for a significant proportion of a company's carbon footprint – sometimes up to 90%. Examples of Scope 3 include business travel, employee commuting or emissions arising from the use of sold products but also upstream activities including raw material and agricultural production.

Essential data that is required for calculating a footprint:

- Energy, gas and water –facilities or energy teams usually hold this information but the finance department will also have access to this through invoices.
- Business travel – This includes staff travel and commuting. Employee commuting could be calculated through a staff survey or calculate emissions on average per employee
- Business Flights. - Air travel information could be collected from your travel agent or the person responsible for booking travel.

The data which is available from within the company is relatively easy to retrieve, such as from electrical and utility bills. Utility suppliers may provide the exact amount of GHG generated by your usage on their bills, which means that you will use this 'custom' emission factor as it is the most accurate. Company car usage and business travel information should be available as these are normally well documented. Using the company activity data and appropriate emission factors, the corresponding greenhouse gas emissions can be readily calculated for each activity.

Emissions can also be produced in processes that take place outside the company, yet these are influenced by decisions made by the company. For example, the company could order products from a firm with production processes that have large GHG emissions, or it could order from a company that has low GHG emissions.

These are scope 3 activities, of which stakeholders and consumers may not be very aware, yet can cause a significant part of a company's emissions. Services provided by other companies and employee commuter traffic also fall into this category. In some cases, the energy consumption of the products manufactured by the company during the usage phase at the customer's premises also cause considerable emissions. There is potential to significantly reduce a corporate carbon footprint by co-operation with suppliers and preferring low GHG emitting ones.

Your data collection procedures should allow the same data to be collected using the same methods in future years. This will allow you to more easily compare current year data with historical trends. Emissions can be compared with historical data or other estimates to ensure they fall within a reasonable range.

You can also compare your activity data from other reference sources such as trade associations or manufacturers of the equipment you are using. Such checks can ensure that consistent data is being reported to all parties. Data can also be compared among facilities within a company. Interface: Integration of emissions and business data systems

Potentially unreasonable estimates provide cause for checking emission factors or activity data and determining whether changes in methodology, market forces, or other events are sufficient reasons for the change. These more detailed investigations can also be utilized to better assess the quality of data.

Data from different facilities should be checked for inconsistent measurement techniques, operating conditions, or technologies. Check that base year recalculation procedures have been followed consistently and correctly. Ensure that operational and organizational boundary decisions have been applied consistently across the organization.

Product carbon footprint

A product carbon footprint is the total sum of greenhouse gas emissions (CO2e) produced throughout a product's lifecycle, including production, distribution and use. It includes emissions of your suppliers, customers and distributors related to the manufacture and use of the product. It also covers emissions created by disposing of any waste, and the impact of recycling.

To determine a product carbon footprint you build a process map List all of the materials, activities and processes that contribute to each stage of the chosen product's life cycle. Then increase the depth of analysis at a product-level, in order to calculate all product-related emissions.

In this way, a Product Carbon Footprint analysis can be carried out on the basis of the analysis and data collection processes already built into the Corporate Carbon Footprint.

A product carbon footprint can be a useful tool to engage with employees, suppliers, investors and customers. It can provide key information that to manage risks as well as to identify cost reduction and product-development opportunities.

It can identify inefficiencies and cost savings in your own processes, and in the supply chain. It can motivate employees to take action to reduce emissions, build brand awareness and value, and support the actions of suppliers and customers in reducing emissions.

The GHG emissions are measured at each stage of the product's life, including:

- extraction and production of materials
- transportation of raw materials
- production (or service provision)
- distribution
- product use
- disposal/recycling.

At each stage the analysis should include GHG emissions resulting from any material inputs to, or outputs from, the process. Commonly these include energy use, transportation fuel and direct gas emissions, such as refrigerant losses from air conditioning units and waste. In the case of a 'service product' the life cycle stages are defined individually for each service.

A product carbon footprint offers a number of benefits, both in terms of differentiating the product or service you assess, and helping you better understand and manage your supply chains. The three main reasons to calculate the carbon footprint of your product or service are to:

- drive change and reduce costs and emissions within your company
- communicate to interested third parties e.g. customers
- drive wider change in the supply chain.

Identifying areas where you can reduce GHG emissions will often result in cost savings, in terms of transport energy, waste and packaging. For example understanding the carbon impact of your supply

chain more clearly can also help you manage the potential risks climate change might bring to your business.

You may see that you can reduce your emissions by changing suppliers, choice of materials, manufacturing processes, method of delivery and product designs.

Customers, employees and shareholders are becoming increasingly aware of the environmental impact of the goods and services they use. A product carbon footprint can help to differentiate your product or service and enhance your brand image. Committing to or demonstrating carbon reductions can help you attract new customers.

You may also consider using third party endorsement of the footprint – e.g. through the Carbon Reduction Label – to validate your claims. It's important to look at your whole product supply chain, rather than just one part, as this will let you see all the opportunities to reduce emissions. You can then take positive action to reduce the total emissions, which will benefit everyone, more than shifting emissions within the chain. It can also help you develop better relationships with your suppliers; by helping them identify and eliminate inefficiencies in their own processes.

Before you start, be clear about why you are measuring the product footprint. Is it to be used internally to analyze the supply chain or to be publicly disclosed? Determine what level of detail you need. Is a high-level approach that identifies carbon hot spots sufficient, or do you need a detailed analysis that can be independently verified? Nominate who is available internally to carry out the analysis, and how long will it take? Would you benefit from independent, external advice or verification of your footprint?

The next step is to choose a representative product or service 'functional unit' on which the carbon footprint will be based and reported – e.g. per kg or per hour of service – and work to engage your supply chain in the measurement process.

Assessing the carbon footprint of a product requires a consistent approach to enable you to compare it with other products or services. A standard method Current guidance for calculating a product carbon footprint includes the PAS 2050, which was published in October 2008 (and revised in 2011) following

extensive development and international consultation, ISO 14067 and the GHG Protocol Product Life Cycle Accounting and Reporting Standard.

All three are applicable to a wide range of goods and services, and include the scope of analysis, collating data and calculating GHG emissions. They give guidance on how to treat emissions relating to issues such as recycling, renewable energy and land use change. To make sure your calculations are consistent, it's a good idea to use baseline data (including standard emission factors and process calculators) as well as the guidance provided by PAS 2050 or ISO14067.

In the future, the International Life Cycle Database (ILCD) will provide consistent data across sectors. The GHG Protocol Product Standard, released in 2011, also provides requirements to quantify the GHG inventories of products, and includes requirements for public reporting. For more information on the Product Standard see the Greenhouse Gas Protocol website.

Quality of data

One potential measure of data quality is a quantitative and qualitative assessment of their uncertainty.

In the countries where data are not specific, organizations are reluctant to apply international values since the accuracy of the results is not guaranteed, due to difference between the locations. The calculation of carbon footprints that are based on generic data can be totally different to the real situation, and thus have a high uncertainty. This has major impact on the credibility of any results coming from any calculation method.

When developing an emission factor, the issue of uncertainty and its evaluation arises. Moreover, different sources of uncertainty can be identified:

- Parameter uncertainty: a measure of how close the data used to calculate emissions are to the actual data and real emissions. For example: GWP values are associated with an uncertainty of ± 35% for the 90% confidence interval. The estimated uncertainty of emissions from individual sources (e.g. power plants, motor vehicles, dairy cattle) can be a function of instrument characteristics, calibration and sampling frequency of direct measurements. However, more often, it is a combination of the uncertainties in the emission factors for typical sources and the corresponding activity data:
- Model uncertainty: limitations in the ability of the modeling approach used to reflect the real world; Scenario uncertainty: methodological choices allocation, product use assumption,
- Uncertain end of product life assumptions.

Communicating your results

Many companies calculate their carbon footprint emission levels as part of a carbon reduction and offsetting strategy. They also may share the information for public disclosure in order to:

- report their emissions as part of a corporate social responsibility or for marketing purposes
- respond to requests from business customers and investors for carbon emissions data
- participate in carbon reporting initiatives such as the Carbon Disclosure Project

If you are going to publicly disclose your footprint you should adopt a robust approach to calculating your carbon emissions and the GHG Protocol is the standard that the majority of organizations follow.

Obtaining independent certification or validation can give external stakeholders more confidence that the methods have been used correctly and that the results are accurate.

Reporting your carbon footprint can help engage your employees, customers and other stakeholders, as well as enhance your reputation. Whether you decide to report your carbon footprint internally or externally, make sure the data is presented transparently. This means providing complete information including methods, footprint boundaries, data quality and assumptions. Try to keep a consistent approach when reporting changes over different years and explain the context, e.g. changes in the business structure.

Communicating internally your organizational carbon footprint to employees can help engage them in the process of carbon reduction and energy management. If you are going to ask people to try and save energy, it's important to show them what difference they are making to your organization's emissions. This means they need to know the starting point and the progress they are making. The data you collect may also help employees identify efficiencies in existing processes and practices. Once achieved, can help to retain and attract an increasingly environmentally-aware workforce. Plus, of course, if you do manage to save energy, you'll see a reduction in costs, and a better bottom line.

Communicating your organizational footprint externally demonstrates that you are concerned with the impact your business is having on the environment. For business-to-business organizations, many businesses that you are selling to may either require their suppliers to report emissions, or at least prefer to do business with companies with proven green credentials.

A published and certified carbon footprint is a credible way of demonstrating this, particularly if it includes a carbon reduction program. More and more, as we move into low emission economies in the future, this can provide a company with a competitive edge. For business-to-customer organizations, consumers are increasingly taking environmental issues into account. Publishing carbon footprints is a good way to give the customer confidence in the organization.

Reducing emissions

You should be implementing an ongoing emission reduction program to reduce your GHG emissions and track your progress using consistent standards to measure your footprint.

An emission reduction program is provided by the Climate Change Institute for organizations. It can be found on our website. It provides a template for the organizational policies and procedures to effectively reduce emissions. This is an ongoing program which should be used in conjunction with this GHG Inventory calculator.

It is recommended that each reporting organization annually track emissions by scope. Setting a GHG Reduction Goal Setting a goal is a tangible action that communicates to stakeholders an organization's climate strategy and commitment.

Having a target can motivate staff, help drive long-term strategies, and save money for the organization through energy efficiency projects. A credible goal should meet the following criteria:

1. Corporate-wide: including operations within the boundary.

2. Forward-looking: based on the most recent base year for which data are available.

3. Long-term: achieved over five to 10 years.

4. Reduction from baseline emissions: expressed as an absolute GHG reduction, a decrease in GHG intensity, or as a goal to be carbon neutral. Absolute goals are EPA's preference.

5. Aggressive: in comparison to the projected GHG performance for the organization's sector.

6. Include scope 1 and 2 emissions, at a minimum, plus major scope 3 sources if available.

Determining the Type of Goal Goals can be expressed as:

- an absolute GHG emissions reduction; or
- as a decrease in GHG intensity.

Absolute GHG reduction goals compare total GHG emissions in the goal year to those in a base year. GHG intensity goals allow an organization to account for increases or decreases in production, square footage, or other metric over time. The ratio of GHG emissions to an appropriate normalizing factor becomes the organization's key performance indicator for measuring GHG intensity. Companies with emissions primarily from office space should use square footage of space as their normalizing factor. Organizations may choose to use number of employees if employee business travel is a large percentage of its total emissions.

The greenhouse gas equivalencies calculator from the EPA: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator is useful to help understand abstract emission measurements as it puts them in context.

SAMPLE – ONLY

Going Carbon Neutral

Forward looking organizations are setting a goal to become carbon neutral. This is a commitment to achieve and maintain net zero GHG emissions in an organization's operations. A carbon neutral goal should include the following:

1. Have a robust, transparent GHG inventory in place that covers all emission sources included in the organization's boundaries, including major scope 3 sources.

2. Look for opportunities to reduce emissions - for example, through energy efficiency, installing onsite renewable energy, or setting up employee commuting programs. Set an absolute or intensity based internal reduction goal to motivate the organization to implement these changes.

3. Purchase carbon offset certificates to offset the remaining emissions. These can be purchased through the Climate Change Institute which offers Offset Certificates from selected projects which have been verified and offer excellent value for the buyer.

Now let the world know that your organization is climate friendly. The Climate Change Institute has 750,000 followers in social media that want to know which climate friendly companies and products that they should support. More and more Consumers want to reward companies that are actively fighting climate change.

- If we are to beat Climate Change, then it is vital that the time and resources spent by companies to become climate neutral is recognized in the market and gives them a competitive advantage. Register with the Climate Change Institute and we will promote your company through our social media program and website.

GHG Emission Statement

[Copy and paste the inventory report template into a new word document or you can download the word file from our website].

Greenhouse Gas Emissions Statement

[COMPANY NAME]

[INVENTORY YEAR]

Have any facilities, operations and/or emissions sources been excluded from this inventory? If yes, please specify.
Reporting period covered by this inventory
From MM/DD/YYYY to MM/DD/YYYY

ORGANIZATIONAL BOUNDARIES

Which consolidation approach was chosen		
Equity Share	Financial Control	Operational Control
❑	❑	❑

Direct CO2 emissions from Biogenic combustion (mtCO$_2$)

METHODOLOGIES AND EMISSION FACTORS

Methodologies used to calculate or measure emissions
GHG Protocol and EPA Calculation Tools

ORGANIZATIONAL BOUNDARIES

List of all legal entities or facilities over which reporting company has equity share, financial control or operational control	% equity share in legal entity	Does reporting company have financial control? (yes/no)	Does reporting company have operational control? (yes/no)

If the reporting company's parent company does not report emissions, include an organizational diagram that clearly defines relationship of the reporting subsidiary as well as other subsidiaries

INFORMATION ON EMISSIONS (Attach full emission report)

Emissions disaggregated by source types	
Scope 1: Direct Emissions from Owned/Controlled Operations	
Total	
Scope 2: Indirect Emissions from the Use of Purchased Electricity, Steam, Heating and Cooling	
Total	
Scope 3: Indirect Emissions that are not owned or controlled by the organization sources, such as employee commuting	
Total	
Total Emissions (mtCO2e)	

INFORMATION ON OFFSETS

Information on offsets that have been purchased or developed *outside* the inventory boundary		
Type of offset project	Certification Standard	Quantity of GHGs (mtCO2e)
Total Offsets (mtCO2e)		

NET EMISSIONS

Total Emissions minus Total Offsets		
Total Net Emissions (mtCO2e)		

GHG emissions data for all years between the base year and the reporting year (including details of and reasons for recalculations, if appropriate)

Relevant ratio performance indicators (e.g. emissions per kilowatt-hour generated, sales, etc.)

An outline of any GHG management/reduction programs or strategies

ADDITIONAL INFORMATION

Information on any contractual provisions addressing GHG-related risks and obligations

An outline of any external assurance provided and a copy of any verification statement, if applicable, of the reported emissions data.

Information on the quality of the inventory (e.g., information on the causes and magnitude of uncertainties in emission estimates) and an outline of policies in place to improve inventory quality

INFORMATION ON OFFSETS

Information on offsets that have been purchased or developed *outside* the inventory boundary

Quantity of GHGs (mtCO2e)	Type of offset project	Were the offsets verified/certified and/or approved by an external GHG program (e.g., CDM)

Name of organizational representative responsible for GHG inventory survey
Date: MM/DD/YYYY
Name:
Email:
Phone:

Specify if this inventory been verified by an accredited third party
Date of verification: MM/DD/YYYY
Verifier:
Email:
Phone:
Business Name & Address: