Is Your Business Ready to Measure and Report Its **Greenhouse Gas Emissions?**

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Once you understand your baseline carbon footprint, you can **set targets for reducing GHG emissions** and begin to **see both business and environmental benefits**.

Consumers, investors and community stakeholders are increasingly focused on climate change and sustainability, creating an opportunity for businesses. When you understand, manage and report on greenhouse gas (GHG) emissions, you seize an opportunity to stand out from competitors as well as contributing to a sustainable world. Shifting priorities in the marketplace are evident in the increase of voluntary greenhouse gas (GHG) emissions reporting, largely driven by investor and stakeholder requests. In addition to voluntary reporting, mandatory disclosure requirements are advancing internationally with CSRD and at the state level in the U.S., with California's Corporate Climate Data Accountability Act serving as the model. As a result, GHG emissions and sustainability are increasingly becoming part of routine business reporting.

For businesses unaccustomed to measuring or reporting on GHG emissions or other sustainability metrics, these new expectations can be daunting. How do you even begin to measure and report GHG emissions? The process requires a methodical approach that begins with an emissions inventory, then uses information specific to your processes and facility to either measure or calculate your emissions.

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THE BASICS:
WHAT YOU NEED TO KNOW

WHAT ARE GREENHOUSE GASES (GHGs)?

GHGs are gases in the atmosphere that trap heat and reflect it back to the surface of the earth. They act like the glass walls of a greenhouse: as warming rays of the sun penetrate the atmosphere, GHGs form a layer around the earth that prevents heat from escaping; rather than the heat radiating back out to space, it builds up in the atmosphere.

The most common GHG is carbon dioxide (CO_2), but the following GHGs also trap heat:

CH_4	Methane
N_2O	Nitrous Oxide
NF_3	Nitrogen Trifluoride
HFCs	Hydrofluorocarbons
PFCs	Perfluorocarbons
SF_6	Sulfur Hexafluoride

Today, most GHGs enter the atmosphere from the combustion of fossil fuels such as oil, gas, coal and wood. The combustion of these fuels releases CO_2 and water; however, most fuels contain some level of contaminants, so other GHGs or pollutants form as well.

Agriculture and farming practices can also create GHG emissions, including nitrous oxide. These emissions occur through the use of nitrogen-based fertilizers. Fluorinated gases (HFCs and PFCs) have no natural source and are a direct result of human activities; they are predominately used as replacements for ozone-depleting substances. Other sources of GHGs include industrial manufacturing, waste disposal and management, building operations and agricultural sources such as livestock and rice production.

WHAT ARE THE POTENTIAL IMPACTS OF GHG EMISSIONS?

Emissions of GHGs have increased rapidly in the last century due to human activity. Each GHG has been assigned a global warming potential (GWP), which measures how potently that gas traps atmospheric heat compared to CO_2. The GWP indicates a GHG's potency as a contributor to climate change. Because each GHG has a different warming potential, emissions are commonly reported as a "carbon dioxide equivalent," or CO_2e. This makes reporting easier and enables direct comparison.

Although it is not a GHG, atmospheric water vapor can be an indicator of climate change due to GHG emissions. GHGs are non-condensable, meaning they remain gases at typical atmospheric temperatures and pressure ranges. Water, however, exists in a gas, liquid or solid state in these ranges. Rising temperatures at the earth's surface result in liquid water absorbing heat and then evaporating into the gas phase. When temperatures cool, the water precipitates as rain or snow. Therefore, increased global temperatures result in more water vapor in the atmosphere overall, which then leads to extreme rainfall and flooding events, although changing weather patterns can simultaneously cause droughts and wildfires in other regions.

ACRONYMS TO KNOW

ESG	Environmental, Social and Governance
EPA	U.S. Environmental Protection Agency
SASB	Sustainability Accounting Standards Board
SEC	U.S. Securities and Exchange Commission
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CH_4	Methane
N_2O	Nitrous oxide
NF_3	Nitrogen trifluoride
NH_3	Ammonia
HFCs	Hydrofluorocarbons
PFCs	Perfluorocarbons
REC	Renewable Energy Certificates
PPA	Power Purchase Agreement
GWP	Global Warming Potential
GHG	Greenhouse Gases
GHG Protocol	Greenhouse Gas Protocol

GHG Inventory Management Plan (IMP)

GHG emissions may originate at local sources, but gases are transported across the globe and produce global impacts. **Therefore, reporting protocols and programs are established by national and international standard-setting organizations**.

HOW ARE GHG EMISSIONS CATEGORIZED?

A GHG inventory is more than just a bookkeeping exercise. It is an opportunity to look for savings — in time, money and energy — and gather information that allows your leaders to make better decisions. The Greenhouse Gas Protocol[1] (GHG Protocol) is a well-established accounting and reporting standard for GHG emissions; it provides accounting and reporting standards for businesses. Its Corporate Accounting and Reporting Standard (Corporate Standard) cites five main reasons for performing an inventory:

- **Managing GHG risks and identifying reduction opportunities**
- **Public reporting and participation in voluntary GHG programs**
- **Participating in mandatory reporting programs**
- **Participating in GHG markets**
- **Recognition for early voluntary action**

The GHG Protocol, and many other standards or protocols based on it, uses three "scopes" to delineate the emission sources as either direct (Scope 1) or indirect (Scopes 2 and 3). Because potential crossovers exist among the three scopes, it is important to understand them all to avoid double counting.

SCOPE 1

GHG emissions that are generated by the company's boilers, furnace, vehicles or chemical production and process equipment.

There are four different types of Scope 1 emissions: stationary combustion (such as building heat sources), mobile consumption (such as transportation), fugitive emissions (such as leaks) and process emissions (such as manufacturing).

SCOPE 2

GHG emissions that are generated indirectly, such as the purchase of electricity, steam, heating or cooling that is generated elsewhere.

A U.S. Environmental Protection Agency (EPA) directive notes that, while these emissions are not under the control of a company, "they are accounted for in an organization's GHG inventory because they are a result of the organization's energy use."

SCOPE 3

GHG emissions that occur from assets not owned or controlled by the reporting company.

Upstream Scope 3 emissions include goods and services that a company acquires, transportation of goods to the company, and employees' business travel and commuting. Downstream Scope 3 emissions are caused by use of the company's products and the transportation of products after they've been sold.

1 https://ghgprotocol.org/

WHAT ARE SCOPE 1 EMISSIONS?

Within the Corporate Standard, the GHG Protocol defines Scope 1 emissions[2] as direct emissions from a company-owned source. These are most often associated with stationary source combustion, transportation, manufacturing processes and fugitive emissions such as air conditioning equipment.

Stationary combustion[3] sources are fuel-burning equipment such as boilers, heaters, furnaces, generators, turbines and ovens. These activities directly generate CO_2, CH_4 and N_2O emissions. Most stationary combustion fuels are fossil fuels, but biomass and other alternative fuels may be used in stationary combustion applications. GHG inventories account for emissions from all fuel types, regardless if fossil or an alternative fuel.

Similarly, Scope 1 emissions include mobile combustion[4] sources that directly generate CO_2, methane and N_2O emissions. Mobile sources represent transportation of goods by owned or leased fleets (vehicles, trains, maritime and airplanes).

Fugitive emissions[5] result from the intentional and unintentional release — usually through leakage — of GHG from refrigeration and air conditioning equipment, fire suppression systems, manufacturing processes and industrial gases. Fugitive emissions generally occur during installation, use or disposal. The GHGs emitted vary widely depending on the industry but are frequently CO_2, methane and other hydrocarbons, and HFCs.

Depending on your industry, Scope 1 emissions can also include GHG emissions associated with physical or chemical processing of materials. Although varied, these sources all have one thing in common: they are directly emitted and owned or controlled by your company.

2 https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
3 https://www.epa.gov/sites/default/files/2020-12/documents/stationaryemissions.pdf
4 https://www.epa.gov/sites/default/files/2020-12/documents/mobileemissions.pdf
5 https://www.epa.gov/sites/default/files/2020-12/documents/fugitiveemissions.pdf

WHAT ARE SCOPE 2 EMISSIONS?

Purchased electricity, steam, heating and cooling comprise Scope 2 GHG emissions[6]. These energy sources fall into the category of indirect GHG emissions for the company using the electricity or heating/cooling.

Scope 2 emissions are purchased from and managed by an off-site entity, such as an electric/utility company, a localized grid or energy district. They are part of your organization's energy use even though the GHG emissions occur off-site. Indirect emissions also occur when heat from hot water or cooling from cold water is delivered to the company.

Purchased utilities and energy can be generated by multiple sources, such as the burning of fossil fuels, hydropower plants, geothermal, wind generators and solar. Emissions from purchased utilities such as electricity and heat are based upon the GHG emissions associated with the generating activity.

6 https://ghgprotocol.org/sites/default/files/2023-03/Scope%202%20Guidance.pdf

WHAT ARE SCOPE 3 EMISSIONS?

Scope 3 emissions[7] are indirect emissions arising from both upstream and downstream activities of a company. They represent all GHG emissions along a company's value chain, from product design, consumer purchase, and energy consumed by those products in use to the products' disposal after use.

Scope 3 emissions are often the most complex and difficult to quantify of a company's GHG footprint and include indirect emissions that are not accounted for in the reporting facility's Scope 1 and 2 emissions. Further complicating the accounting, one company's Scope 1 and 2 emissions are often another reporting company's Scope 3 emissions.

Scope 3 GHG emissions include the same gases as Scope 1 and Scope 2; what is different is where they appear in the product's value stream. Upstream emissions are emitted during the acquisition and preprocessing of materials and supplies. Downstream emissions are associated with the distribution and storage of goods, their use and how they are dealt with at end of life.

The GHG Protocol separates Scope 3 emissions into 15 categories, split between upstream and downstream emissions. Upstream emissions occur before raw materials, people or fuel reach the company's organizational or operational boundaries, while downstream emissions happen after those things leave the boundaries. Some examples are listed in the table below.

Upstream Scope 3 Emission Sources

- Purchased goods and services
- Capital goods
- Fuel and energy-related activities not included in Scopes 1 or 2
- Waste generated in operations
- Business travel
- Employee commuting
- Upstream leased assets
- Upstream transportation and distribution

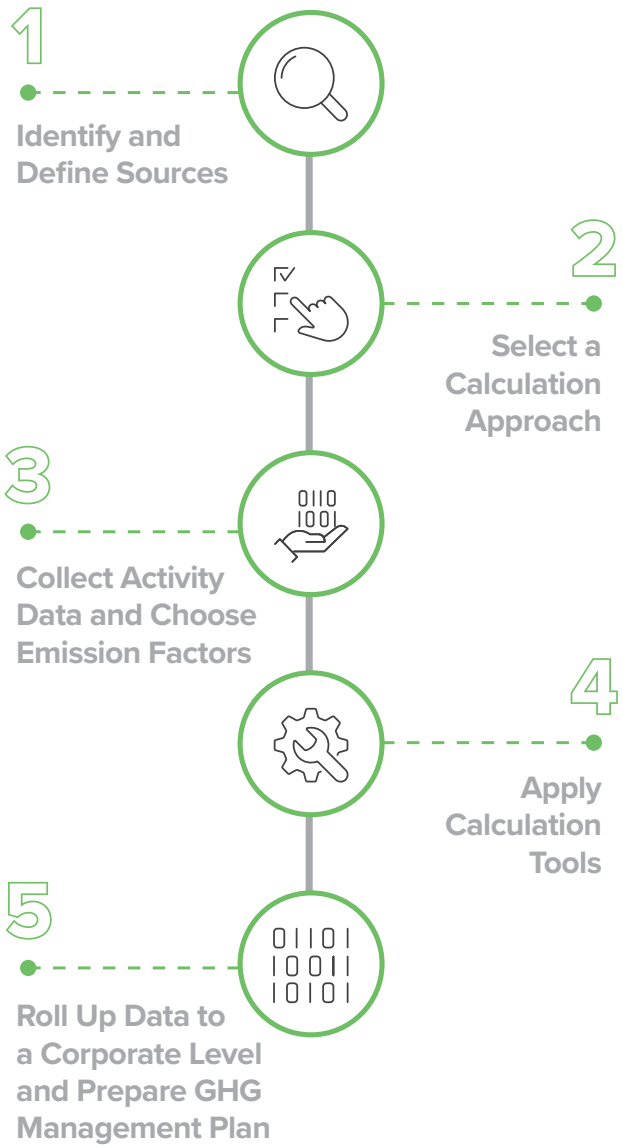
Downstream Scope 3 Emission Sources

- Downstream product transportation and distribution
- Use of products sold
- Processing of sold products
- End-of-life treatment of sold products
- Downstream leased assets
- Franchises
- Investments

7 https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

HOW DO YOU INVENTORY YOUR **ORGANIZATION'S GHG EMISSIONS?**

The GHG Protocol[8] outlines five essential steps to manage your GHG emissions and take advantage of the resulting business opportunities. Its approach is substantially similar to the four steps detailed in "The GHG Inventory Development Process" published by the EPA[9]. The main difference is the EPA states that organizations should also prepare a GHG management plan, as well as identify emissions tracking and reduction goals.



STEP 1

IDENTIFY AND DEFINE SOURCES

The three GHG scopes are categorized by where they occur or who controls them; therefore, in order to identify your emissions sources, you must first know clearly what processes or operations you own and control. That means defining the organizational and operational boundaries for your company. There are two common approaches to determining organizational boundaries: either equity share or control. The equity share approach is usually based on ownership percentage and economic interests, and it works well when the same entity both owns and controls key facilities.

The other common option, known as the control approach, looks at who controls the processes or operations. This method assigns 100% of the GHG emissions from any operations to the company or entity that has either financial or operational control. Financial control exists if a company holds the right to most of the benefits (i.e., profits or use of goods produced), while operational control means that the company can introduce and implement operating policies.

Clear operational boundaries allow you to identify which emissions are direct (on your property or under your control, or Scope 1) and which are indirect (associated with purchased power, which is Scope 2, or emissions released by your upstream and downstream value chain and indirect sources such as employee travel, which are Scope 3). Once you have decided which type of boundary accounting to use, you can then begin to identify emissions and categorize them into Scopes 1, 2 and 3.

8 https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
9 https://www.epa.gov/climateleadership/scopes-1-2-and-3-emissions-inventorying-and-guidance

STEP 2

SELECT A CALCULATION APPROACH

After you have defined organizational and operational boundaries and categorized emissions into different scopes, the next step is to select a calculation approach. There are three possible methods: direct measurement, estimated emissions (the most common method) or mass balance calculations. Your choice will be based on what kind of information you have available. If you have the equipment and ability to measure emissions directly, then do that as the most precise option. However, those capabilities are rare.

> Most facilities estimate their GHG emissions using **activity and operational data such as fuel usage**.

Emissions of other greenhouse gases, such as methane or nitrous oxide, are usually converted to their "carbon dioxide equivalent," or CO_2e, to simplify reporting and comparability.

The third approach, mass balance or stoichiometric calculations, uses facility and process data, along with chemical equations, to calculate the amount of CO_2 or CO_2e being released.

STEP 3

COLLECT ACTIVITY DATA AND CHOOSE EMISSION FACTORS

Assuming you follow the estimated emissions approach, you will need to compile the relevant activity data. This data could include, for example, kilowatt-hours of electricity used, quantity of fuel used, process outputs, hours of operation for each piece of equipment, distances traveled and the square footage of a building.

You must also must research or calculate emission factors for each process or activity, representing the quantity of GHG released to the atmosphere for a given amount of product or fuel burned. For example, a power plant might have an emissions factor of 0.85 kilograms of CO_2 per kilowatt-hour of electricity produced. Emission factors should be source-specific, if possible, though general factors are publicly available. If you don't have the necessary data to calculate them directly, industry organizations or equipment manufacturers may be able to help you identify emissions factors that fit your facility and processes.

STEP 4

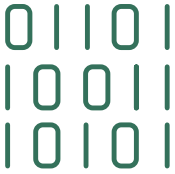
APPLY CALCULATION TOOLS

There are a wide variety of calculation tools and guidance publicly available, such as those published by GHG Protocol[10], EPA[11] and United Nations Framework Convention on Climate Change (UNFCCC)[12] to name a few. Many calculators are available. Some are designed to calculate stationary, mobile or fugitive emissions for nonindustrial emitters, while others are specific to an industry.

To choose the best tool for your company and operations, first look for a tool that complies with the standard you have selected or are required to use. Industry associations may publish a list of tools with emissions factors and calculations appropriate for your industry. Then consider practical issues such as cost, technical compatibility and the user interface.

Once you have chosen and installed the appropriate calculation tool, then you can enter all the activity data and emission factors you gathered in the first three steps.

STEP 5



ROLL UP DATA TO A CORPORATE LEVEL AND PREPARE GHG MANAGEMENT PLAN

To report total GHG emissions, companies will usually need to aggregate data from multiple sources. It is essential to set company-wide expectations for integrating GHG emissions reporting into routine processes. You will need to define who is responsible for each task in order to eliminate the potential for double-counting. For internal roll-up to the corporate level, it is recommended that standardized formats be used to ensure that data are complete, appropriate and accurate.

One common format is the GHG IMP[13], recommended by the U.S. EPA. This internal document formalizes the inventory process and should include, at a minimum:

- Organization information
- Boundary conditions
- Emissions quantification
- Data management
- Base year
- Management tools
- Auditing/verification processes

Implementing an IMP increases consistency over time by creating a repeatable process as well as transparency in GHG accounting and reporting.

10 https://ghgprotocol.org/calculation-tools-and-guidance
11 https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator
12 https://unfccc.int/documents/271269
13 https://www.epa.gov/climateleadership/inventory-management-plan-guidance

AFTER THE INVENTORY

SET REDUCTION TARGETS AND STRATEGY

Once GHG emissions have been inventoried at the corporate level, a company can accurately assess where it stands and begin to develop long-term emissions strategies, such as net-zero or carbon-neutral goals.

The Science Based Targets initiative (SBTI)[14] provides businesses with tools to help them set aggressive and achievable targets for reducing GHG emissions. To be considered science-based, targets must align with the current climate science and be designed to meet the goals of the Paris Agreement.

> Best practices suggest that announcing targets publicly **increases transparency, accountability and credibility**.

Targets should have clear start and end dates and a specified percentage of change over a fixed number of years (ex. 25% over 10 years). Targets should also address all three scopes.

An example of a publicly announced target adhering to these best practices might be that a company commits to a 15% absolute reduction of Scope 1, 2 and 3 emissions from 2024 levels by 2034.

14 https://sciencebasedtargets.org/

ARE **CARBON NEUTRAL AND NET-ZERO** THE SAME?

Two important terms used to describe GHGs include *net-zero* emissions and *carbon neutral*. Often used interchangeably, they do not always mean the same thing, though both terms have a similar goal — to describe a net reduction in emissions harmful to the earth's atmosphere.

Carbon neutral means that the amount of ***carbon*** being removed from the atmosphere (through purchased offsets, for example) equals the carbon emitted by the company. This term is most often used when companies are promising to buy carbon credits, such as protecting rainforest acreage, equal to their emissions.

Net-zero emissions means that the amount of all GHG emissions removed equals the GHGs produced. In order for a process, a building or a company to be net zero, the same volume of GHGs must be avoided or removed from the environment as those released by its activities. For example, a building might use solar panels to generate more electricity over the course of a year than it purchases from the utility company. Companies that claim to be *net zero* often achieve it through efficiency measures or sustainable electricity generation.

In June 2024, the U.S. Department of Energy issued a *national definition of net zero* as it applies to buildings, focusing on energy-efficient construction and on-site energy use. This definition does not attempt to calculate embodied energy or trace the upstream or downstream value chain.

If you want to use either carbon neutral or net-zero in your GHG strategy or marketing, it's important to be clear about the scope of your claims. Are your entire global operations striving to be carbon neutral, or just the process for manufacturing one particular item?

A DEEPER DIVE:
CALCULATING GHG EMISSIONS

The process starts with data collection from your facilities, manufacturing operations and procurement departments. In general, the calculation method for the most common method can by summarized by:

Activity Data X **Emission Factors** X **GWP**

= **CO_2e of Emissions**

Emission factors are published by entities including the GHG Protocol, IPCC, various government agencies and specific sector sources. Similarly, the global warming potential (GWP) ratios are published by respected government and standard-setting sources. Together, an emission factor, source activity data and GWP are used to convert various GHG emissions to a common unit of CO_2e.

For Scope 1, emission factors are specific to type and size of equipment and type of fuel combusted (if any). Use the five steps described above to calculate these emissions.

There are two methods used to tally Scope 2 emissions, which are primarily emissions from off-site power generation. The first method is location-based, which considers the average emission factors for local electric grids. The other method is market-based, which looks at contractual arrangements. The industry standard recommends that companies should report GHG emissions for both methods.

The basic calculation for either method is the same. The amount of energy purchased, as reported on utility bills and measured in units such as kilowatt-hours (kWh) or megawatt-hours (MWh), is multiplied by an emission factor appropriate to the purchased electricity. This converts the energy used into the mass of GHGs emitted to produce that energy. What varies between the location-based and market -based methods is the specificity of the emission factor: is the factor based on average data for the location, region or nation (location-based), or on the specific sources that actually provided the power (market-based)?

Not all purchased energy is the same, because emissions are specific to the carbon intensity of the source (such as natural gas, coal, solar or wind) and the efficiency of converting that input to useful energy output. Those differences are captured in the emissions factor, which is the amount of GHGs released per kWh delivered.

FOR THE LOCATION-BASED EMISSIONS FACTORS, THERE ARE THREE MAIN TYPES:

DIRECT LINE
Electricity that does not go through a grid but is supplied directly to a facility.

REGIONAL
Electricity that is purchased through a grid and reported based on geographic location. The Emissions & Generation Resource Integrated Database (eGRID) is an EPA publication that tracks subregional emission factors[15].

NATIONAL
Average grid emissions factors as published by national governments or the International Energy Agency.

FOR MARKET-BASED EMISSIONS FACTORS, THERE ARE FOUR TYPES:

ENERGY ATTRIBUTE CERTIFICATES
These certificates from the supplier carry an emission factor. Examples include renewable energy certificates (RECs) or Guarantees of Origin (GOs).

CONTRACTS
Contracts to purchase power at a specific generating facility, such as power purchase agreements (PPAs), have emission factors associated with that facility.

15 https://www.epa.gov/egrid

EMISSIONS **FACTORS CATEGORIES**

Material or Product Emissions Factors

Life cycle emissions: All emissions related to every aspect of a material or product, from raw material to end of life

Cradle to gate: Upstream-only emissions, from production through the point of sale

Energy-Related Emissions Factors

Life cycle emissions: All emissions from burning fuel, including the fuel from extraction of raw materials, processing materials and transportation

Combustion emissions: Emissions from burning fuels

SUPPLIER-SPECIFIC EMISSIONS

This emission factor is provided by the supplier and must include all electricity it delivers, whether generated or purchased from another supplier.

RESIDUAL MIX

This is a catchall for anything that remains after certificates, contracts and supplier-specific emission factors have been claimed. This emission factor avoids double-counting, but it is not yet widely available. Companies should report the lack of residual mix factors when they are not available, and use national and regional factors instead.

Unlike Scope 1 and 2 emissions, Scope 3 emissions vary widely in impact. Companies should prioritize activities that are most likely to have significant GHG emissions and that offer the most benefits from reduction.

THE GHG PROTOCOL ISSUED TECHNICAL GUIDANCE ON SCOPE 3 SCREENING[16] BASED ON EIGHT CRITERIA:

QUANTITY OF EMISSIONS

The activities that produce the most emissions.

INFLUENCE

Emissions that you can directly reduce or influence, for example by requirements on suppliers.

STAKEHOLDERS

Emissions that your key stakeholders (e.g., customers, investors, neighbors) consider important.

RISK

Sources of emissions that also present other risks, such as financial, compliance/regulatory, reputational or supply chain.

16 https://ghgprotocol.org/scope-3-calculation-guidance-2

OUTSOURCING

Activities that other companies in your industry perform in-house, or that you have only recently outsourced, so that the emissions might normally be part of Scope 1 emissions for your industry sector.

SECTOR GUIDANCE

(GHG Protocol for your industry sector) Emissions identified specifically as high-priority for your industry.

SPENDING OR REVENUE

Activities that are important because they are either high cost or revenue.

OTHER

Emissions that meet other criteria important to your business or industry.

GHG Protocol guidance recommends considering data availability and quality, in addition to the factors above that mostly address importance, when selecting Scope 3 emissions sources to begin tracking and reporting. Just like Scopes 1 and 2, calculating Scope 3 emissions requires you to have activity data and primary emissions factors. However, because Scope 3 sources are further from your control, you are unlikely to have direct knowledge of the processes to be able to calculate emissions factors directly. Instead, you will have to rely on suppliers, vendors, partners or public information to get this data. Remember that, just as for the other scopes, there are both material/product emissions factors and energy-related emissions factors.

For all three scopes, GHG emissions are reported for regulatory purposes in CO_2e and measured in metric tons. Just as currency conversions allow companies in Europe and the U.S. to buy and sell to each other, converting GHG emissions into metric tons of CO_2e allows companies to compare emissions across industries, competitors or prior years.

HOW ARE **GHG EMISSIONS REPORTED?**

In the U.S., thousands of facilities are required to report GHG emissions to the U.S. EPA through the Greenhouse Gas Reporting Program[17] including fuel and industrial gas suppliers, carbon dioxide injection sites and large GHG emissions sources. Some industries you might not expect are also covered: food processing, cement production, paper manufacturing and electronics manufacturing, for example. In addition, individual states may have reporting rules or guidelines you may need to comply with, such as the California Low Carbon Fuel Standard[18] (LCFS), which is designed to decrease the carbon intensity — the weight of carbon emitted per energy unit — of California's transportation fuel pool. The LCFS has guidance for both reporting and modeling carbon. California is not alone; 24 states, the District of Columbia and Puerto Rico have also established inventories and guidelines associated with GHG emissions[19].

Several organizations have voluntary standards and frameworks for reporting sustainability and GHG information. The Global Reporting Initiative (GRI)[20] began in 1997 and has been a catalyst for international sustainability initiatives by providing the world with a common language to report their impacts. Another framework is offered by SASB[21], which is now a part of the IFRS Foundation and will become the International Sustainability Standards Board (ISSB). SASB frameworks guide the financial aspects of sustainability and provide language for how to report sustainability initiatives to investors. The Climate Disclosure Project (CDP)[22], the UN Sustainable Development Goals (SDGs)[23] and the Task Force on Climate-related Financial Disclosures (TCFD)[24] are all common guides for climate-related disclosures.

17 https://www.epa.gov/ghgreporting
18 https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard
19 https://www.epa.gov/ghgemissions/learn-more-about-official-state-greenhouse-gas-inventories
20 https://www.globalreporting.org/
21 https://www.sasb.org/
22 https://www.cdp.net/en
23 https://sdgs.un.org/goals
24 https://www.ifrs.org/sustainability/tcfd/

Although there is specific reporting guidance for each federal or state mandatory program, as well as the voluntary standards and frameworks described above, the common theme among them is that the basis of GHG emissions reporting is supported by ISO 14064 and, subsequently, the GHG Protocol.

HOW CAN YOU BEGIN **REDUCING GHG EMISSIONS?**

Understanding your business's GHG inventory empowers you to explore unique and innovative approaches for reducing emissions. Companies with an established GHG program may also gain increased sales and customer loyalty from environmentally conscious consumers. Proactive, accurate and honest accounting for GHG emissions demonstrates good environmental stewardship and can improve stakeholder relations.

Because Scope 1 emissions are under your direct control, major sources of these emissions are the first place to look. There may be places where a change would provide business benefits in addition to reducing GHG emissions. For example, investment in energy-efficient vehicles, such as hybrids, is one way to reduce both transportation-related GHG emissions and fuel costs. If you operate manufacturing lines, improving their efficiency could reduce both Scope 1 and Scope 2 emissions, and likely reduce your material and waste disposal costs at the same time.

Environmentally conscious consumers are also driving the increasing number of options available to reduce GHG emissions in the Scope 2 category. Renewable energy solutions such as wind, hydropower, geothermal and solar make up an increasing percentage of energy being fed to the electrical grid. While there is no way to separate energy from the source once it reaches the grid, energy data from suppliers (such as Renewable Energy Certificates or Power Purchase Agreements) provide information on the carbon intensity of the energy supplied.

Upgrading heating, cooling and steam systems increase efficiency, which reduces energy demand, lowering your costs and GHG emissions. Small equipment or behavioral changes, such as installing occupancy sensors for lights or asking people to turn off and unplug computer equipment at the end of each work day, can yield measurable cost savings and GHG reductions.

The breadth of Scope 3 emissions opens the door to many emission-reduction opportunities. Encouraging public transportation or lobbying for public transportation improvements may reduce employee commute-related GHG emissions by reducing the number of cars on the road. In addition, the cost of providing employees with train, subway or bus passes may qualify as small offsets. Reductions may also be accomplished through cradle-to-cradle materials, holding business meetings virtually, or setting up recycling programs. Low-cost changes such as these can lead to reduced GHG emissions, operational cost savings and positive perceptions of your company by consumers and stakeholders.

Alternatively, carbon offsets could help reduce your overall carbon footprint while you work toward building GHG emission reduction programs. Carbon offset credits compensate for CO_2 emissions produced by activities like travel or manufacturing. The person or company producing emissions can pay for emission reductions or sequestration (removing CO_2 from the atmosphere) elsewhere, thereby reducing the net total of carbon released. Offset credits can come from projects like reforestation, renewable energy or methane capture. By buying these credits, companies can reduce their net carbon footprint, contributing to overall environmental sustainability.

HOW CAN **WEAVER HELP?**

The increased intensity of climate change discussions demonstrates that companies need robust and transparent practices for managing GHG emissions and sustainability. Companies claiming to be carbon-neutral or net-zero must be able to substantiate these claims, as consumers and investors are requiring evidence and documentation. This is where Weaver can help.

Our team of professionals brings the professional knowledge you need to navigate and develop **GHG and sustainability compliance programs**. Our multidisciplinary Sustainability Services team combines the skills of our CPAs, registered professional engineers, chemists and environmental lawyers to assist businesses in navigating regulations from agencies such as:

EPA, Environment and Climate Change Canada

U.S. Customs and Border Protection Agency

California Air Resources Board

Other States and Agencies

We help companies of all sizes understand regulatory requirements and GHG reporting, maintain corporate and ESG compliance, and identify and maximize benefits that might be available under “green” programs.

Our clients include many of the world’s leading energy companies. We understand the regulatory and technical issues related to sustainable or low-carbon energy, as well as the financial issues involved in carbon sequestration tax credits and green finance.

Contact our team at weaver.com to learn more.