

CARBON ACCOUNTING METHODS FOR ESTIMATING SCOPE 3 EMISSIONS

Understanding a company's GHG emissions is the first step for an effective corporate climate change strategy.



Every year, the effects of climate change become more pronounced.

Governments, corporations, and individuals are increasingly concerned with human impacts on climate change. Many are actively engaging in discussions on strategies to mitigate climate impacts, including setting ambitious, science-based emissions targets and using data to identify climate-related strategies.

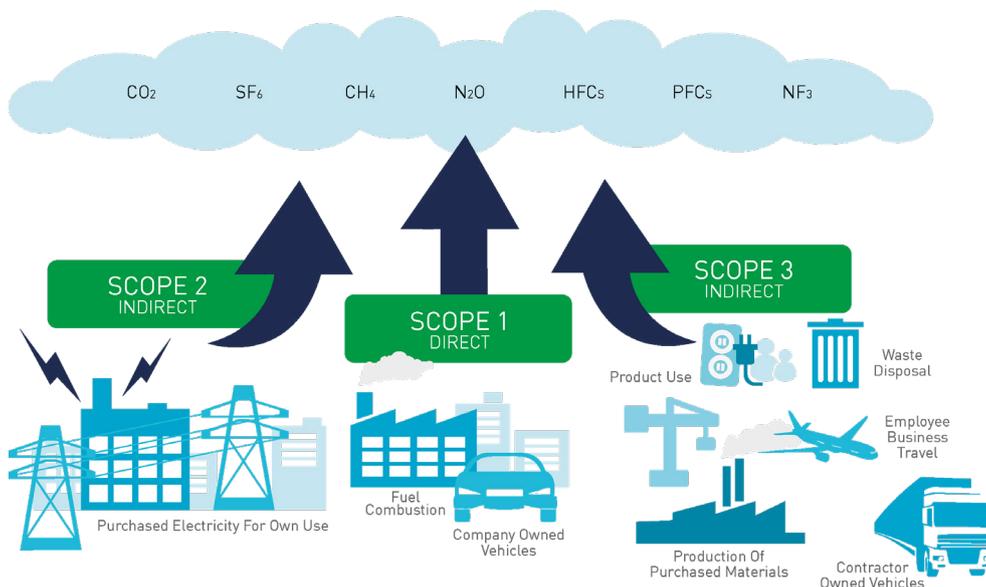
Ambitious, achievable targets are founded on good data. To set a solid foundation, your understanding of your company's environmental, social, and governance (ESG) data should take a comprehensive view of your overall operations as well as that of your value chain.

With this understanding, experts from the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) created the GHG Protocol to provide guidance for companies in accounting for their emissions throughout the value chain. The GHG Protocol's set of standards, guidance, and calculation tools are the most popular accounting devices companies use to understand, quantify, and manage GHG emissions. It provides standards and guidance in preparing a GHG inventory and classifies GHG emissions into three "scopes" based on their sources, encouraging companies to view their emissions from multiple angles:

- **Scope 1** emissions include direct GHG emissions from sources that are owned or controlled by the entity. Examples include emissions from fossil fuels burned on-site, emissions from entity-owned vehicles, and fugitive emissions from refrigerants.
- **Scope 2** emissions include indirect GHG emissions from the generation of purchased electricity, heating and cooling, or steam generated off-site.
- **Scope 3** emissions are indirect GHG emissions from sources not owned or directly controlled by the entity but related to the entity's activities. For example, employee travel and commuting, transmission and distribution (T&D) losses associated with purchased electricity, leased space, vendor supply chains, and use of sold products are sources of scope 3 emissions.

A company's choice of **organizational boundary** will also help define what activities are included in scope 1, 2, and 3 calculations. For example, let's say a company leases an office building. The company does not own the building or have any financial control over it, but it has an operating lease, so it does have operational control. If the company is using the *equity share* or *financial control* approach, then the GHG emissions of this building would be included in the company's scope 3 (upstream leased assets) calculations. However, if the company uses an *operational control* approach, then these emissions would be classified as scopes 1 and 2.

Understanding a company's GHG emissions is the first step for an effective corporate climate change strategy. Historically, companies have tended to focus on scope 1 and scope 2 GHG emissions. Increasingly, however, companies understand the need to account for GHG emissions along their value chains as well as their portfolios. Preparing a GHG inventory which includes scope 3 emissions results in creating a competitive advantage by enabling better product design, increasing efficiencies, reducing costs, and mitigating risks.



Source: Ranganathan, Janet & Bhatia, Pankaj. 2004. "The Greenhouse Gas Protocol: a Corporate Accounting and Reporting Standard, Revised Edition."

UNDERSTANDING DIFFERENT SCOPE 3 STANDARDS

The GHG Protocol's Corporate Value Chain (Scope 3) Standard is a supplement to the Corporate Accounting and Reporting Standard and should be used in conjunction with it.

There are fifteen categories in the **GHG Protocol Scope 3 Standard**, including business activities common to many organizations. These categories allow companies to identify the major areas of impact from business operations and include employee activities. The 'upstream' categories focus on the goods and services a company and its employees utilize in the process of doing business, including:

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets

The 'downstream' categories focus on life cycle GHG emissions of goods and services that a company produces and delivers to consumers. These categories allow companies to focus on the areas of impact related to their specific products, but don't require taking the assessments to the unit level of a product, including:

9. Downstream transportation and distribution
10. Processing of sold products
11. Use of sold products
12. End-of-life treatment of sold products
13. Downstream leased assets
14. Franchises
15. Investments

THERE ARE FIFTEEN CATEGORIES IN THE GHG PROTOCOL SCOPE 3 STANDARD, INCLUDING BUSINESS ACTIVITIES COMMON TO MANY ORGANIZATIONS.

Both 'upstream' and 'downstream' categories are related to the GHG Protocol Standard for Product Life Cycle Accounting and Reporting.

The **Product Standard** is used to understand the full life cycle emissions of a product and to focus efforts on the greatest GHG emissions reduction opportunities. This is the first step towards creating more sustainable products. **By measuring the GHG emissions associated with the full life cycle of products and services, including raw materials, extraction and manufacturing, transportation, storage, and use and disposal of products, companies can holistically manage their GHG risks and opportunities.**

Developed simultaneously, the **GHG Protocol Scope 3 Standard** and **GHG Protocol Product Standard** take a value chain or life cycle approach to GHG accounting. The Scope 3 Standard accounts for upstream and downstream life cycle GHG emissions at the corporate level, while the Product Standard accounts for them at the individual product level. Together with the **Corporate Standard**, these standards provide a comprehensive approach to value chain GHG measurement and management.

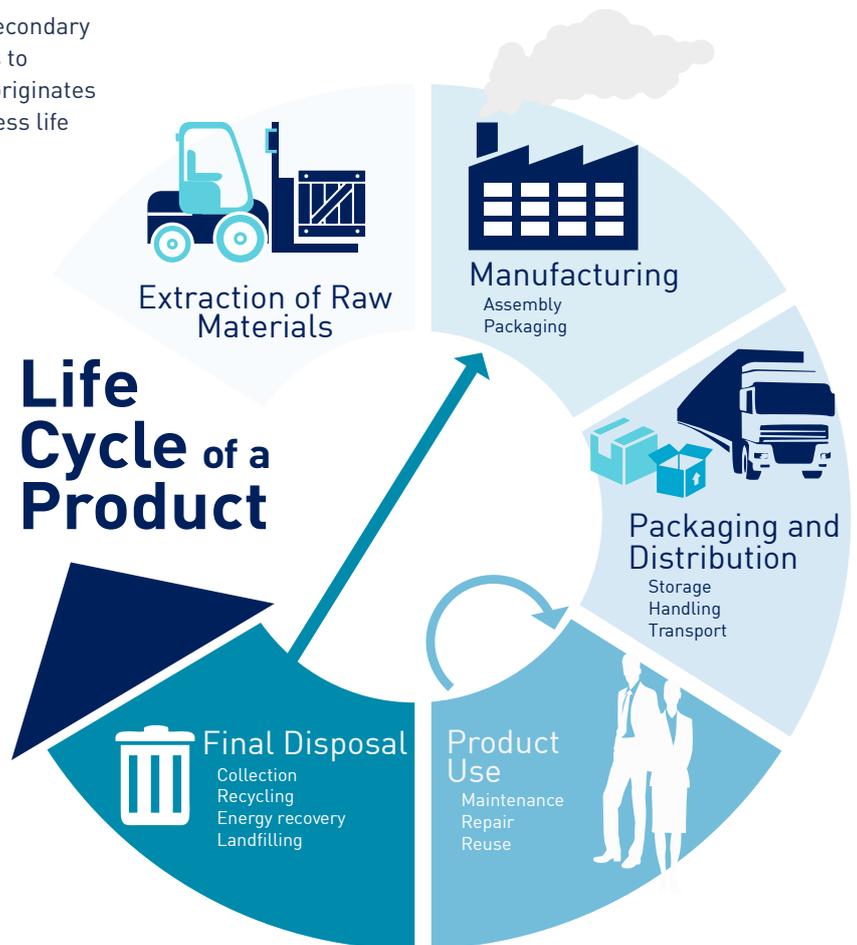
For many business sectors, direct emissions from operations and indirect emissions from purchased energy use comprise a relatively small portion of a company’s total emissions. In fact, the United States Environmental Protection Agency¹, GHG Protocol², and Science Based Targets Initiative (SBTi)³ state that it is common for scope 3 emissions to represent the vast majority of a company’s total emissions profile. CDP also reports that supply chain emissions are more than 10 times higher than emissions from a company’s own operations⁴.

In addition, reporting on scope 3 emissions—where possible—may soon be mandatory for many companies. While disclosing scope 3 emissions was once voluntary, existing and future mandates such as those in New Zealand⁵ and G7 countries are requiring alignment with the recommendations put forth by the Task Force on Climate-Related Financial Disclosures (TCFD)⁶. As TCFD recommendations require scope 1, scope 2, and (if appropriate) scope 3 inventories, global companies will need to account for all emissions sources in order to comply. Climate-focused collaborative groups such as the SBTi also require scope 3 screening and calculations in order to set approved targets, putting additional pressure on companies to accurately calculate and disclose relevant data.

GHG Protocol Standards allow the use of primary and secondary data sources for scope 3 emissions. Primary data refers to supplier-specific GHG emissions data. Secondary data originates from other sources such as industry average data, process life cycle inventory data, and industry association data.

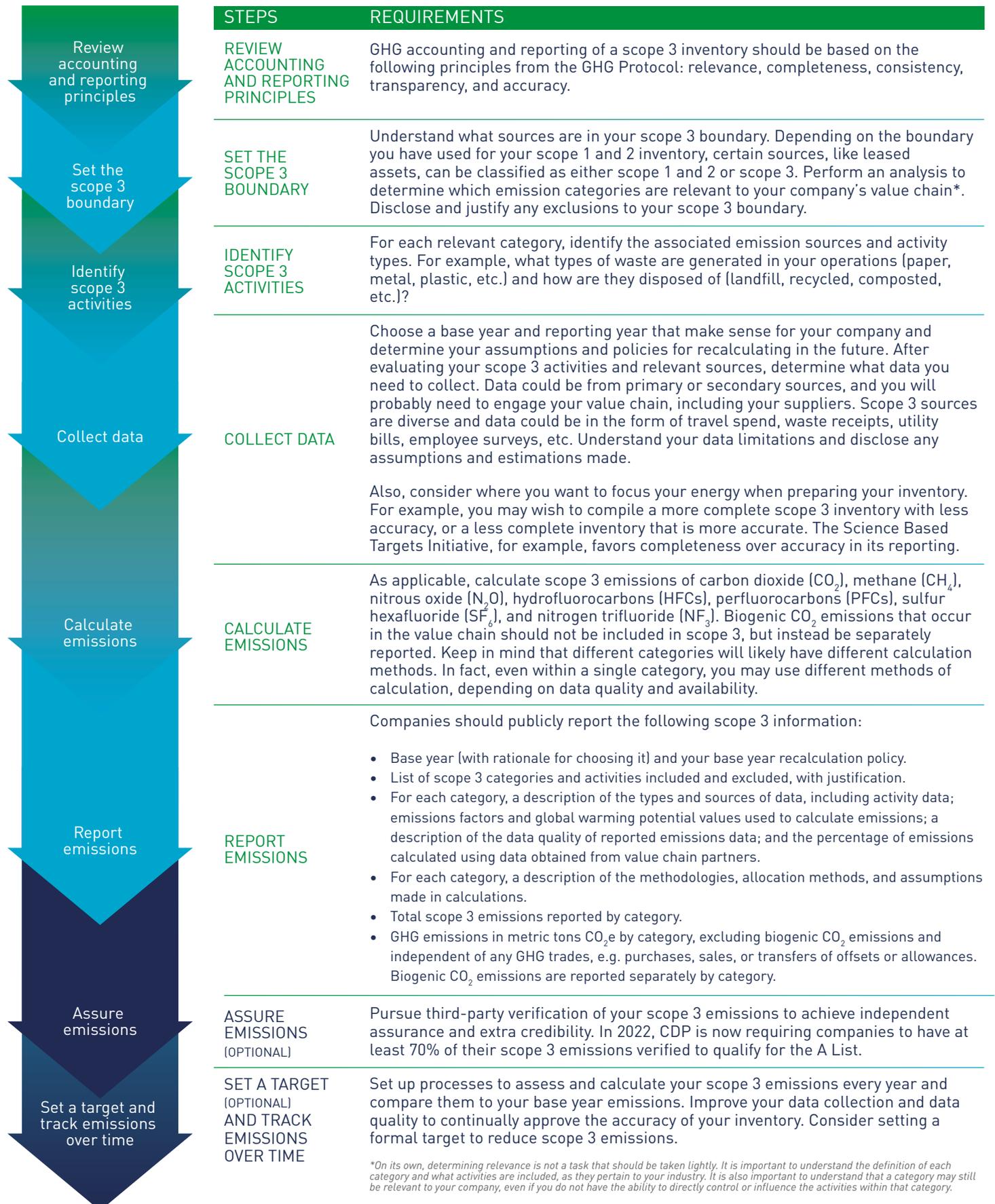
Companies can use these standards for:

- Identifying the risks and opportunities associated with GHG emissions through their upstream and downstream supply chain
- Setting reduction targets and tracking performance
- Engaging suppliers and other value chain partners in GHG management and sustainability
- Enhancing stakeholder information and corporate reputation through public reporting



PREPARING A SCOPE 3 INVENTORY

The figure below provides an overview of the steps in scope 3 accounting and reporting when developing a scope 3 inventory. The steps and requirements are described in more detail in the table to the right of the workflow.



CALCULATING EMISSIONS IS A MULTI-STEP PROCESS

The GHG Protocol provides calculation tools that allow companies to develop a broad and trustworthy inventory of their GHG emissions:

- **Cross Sector Tools:** Applicable to many industries and businesses regardless of sector
- **Sector Specific Tools:** Principally designed for specific sectors or industries, though they may be applicable to other situations
- **Additional Guidance Documents:** Provide further clarification on quantification and reporting issues
- **Customized Calculation Tools:** Customized for particular countries such as China and Mexico

These calculation tools are worksheets with accompanying step-by-step guidance documents to help you navigate the calculation process. A guidance document includes:

- An overview of the protocol with information on the sector, sources, and processes that it covers,
- One or more approaches for determining CO₂ and other GHG emissions, e.g., direct measurement, mass balance
- Guidance on collecting activity data and selecting appropriate emissions factors,
- Likely emission sources and the scopes they fall under (specific to a particular sector), and
- Additional information, such as quality control practices and program specific information.

These tools were developed in partnership with industry experts and represent best practice quantification methodologies. The calculation tools are available on the GHG Protocol website and are meant to complement the Protocol and make calculations easier.

Most of these free tools are likewise listed on the website of the World Resources Institute (WRI), a global environmental think tank that aims to promote sustainable resource management. Most are designed to address scope 1 and scope 2 emissions, but the [Scope 3 Evaluator](#) aims to provide rough estimates on scope 3 emissions based on generic GHG emissions per dollar of spend data derived from a highly aggregated input-output table. The Scope 3 Evaluator offers an excellent first step for companies to familiarize themselves with scope 3 estimations by category. Companies that intend to report scope 3 estimates to a third party or plan to use results for corporate decision-making benefit from the use of professional services or tools that are designed to meet the quality standards necessary for the intended purposes.

COMPANIES THAT INTEND TO REPORT SCOPE 3 ESTIMATES TO A THIRD PARTY OR PLAN TO USE RESULTS FOR CORPORATE DECISION-MAKING BENEFIT FROM THE USE OF PROFESSIONAL SERVICES OR TOOLS THAT ARE DESIGNED TO MEET THE QUALITY STANDARDS NECESSARY FOR THE INTENDED PURPOSES.

The United States Environmental Protection Agency (EPA) also provides a calculation tool. The EPA [Simplified GHG Emissions Calculator \(SGEC\)](#) is designed to develop an annual GHG inventory based on the EPA Climate Leaders Greenhouse Gas Inventory Protocol. This tool can be used to develop a baseline GHG inventory at any level of a community (i.e., facility, campus, city) and to track emissions annually thereafter. The calculator includes emissions from scope 1, 2, and 3 (employee business travel and commuting, product transport, and waste) sources. The calculation tools are available on the [EPA website](#).

VALUE CHAIN ACCOUNTING: THE IMPORTANCE OF SUPPLIER ENGAGEMENT

For many organizations, suppliers are responsible for the majority of emissions accounted for in a GHG inventory. In fact, 2020 CDP supply chain data revealed that reported upstream emissions were an average of 11.4 times higher than emissions from direct operations.⁷ Managing emissions in supply chains is therefore vital to developing more sustainable business models and brands. Companies that measure and reduce supply chain emissions can use low-carbon credentials to attract customers and improve access to capital.

Business intelligence on energy use and emissions embedded in supply chains can be used to improve efficiency and risk management, revealing opportunities to gain a competitive advantage. Companies are also starting to measure carbon in supply chains to strengthen sustainability, supply chain management, and brand value.

According to Proceedings of the National Academy of Sciences of the United States of America (PNAS), emissions from international trade have increased by more than 80% since 1990. Emissions from supply chains are a significant part of this increase.

Extending GHG management to procurement helps uncover resource and process inefficiencies that deliver cost savings, or help protect cash flows from increasing input costs. Organizations use findings from measuring carbon in supply chains to prepare for low-carbon opportunities by managing risks from increasing energy costs and carbon restrictions.

Measuring, reporting, and reducing carbon emissions from operations and critical suppliers reduce the cost of capital. Forward-thinking organizations are including measures to address supply chain carbon in climate change strategies. Working with critical suppliers to cut emissions helps strengthen supply chain management and brands.

As of early 2022, CDP has reported more than 200 major purchasing organizations working with their 15,000+ suppliers on reducing emissions and mitigating climate change, including Dell, Intel, Target, Johnson & Johnson, The LEGO Group, and Samsung.⁸ While many industries have made great strides in reducing their climate impacts and mitigating climate risk along the value chain, there is still so much left to be done. Managing your emissions is a key ingredient in the recipe for effective, informed corporate strategy—one that not only uses good data to drive decision-making but also continues to take action in a way that drives change for the better.

HOW ADEC ESG SOLUTIONS CAN HELP

ADEC ESG Solutions partners with companies of all sizes to help put your sustainability data to work. Let us take you from data tracking and analysis to the kind of streamlined reporting that leads directly to action.

Contact us today to learn more about services such as:

- Scopes 1, 2, and 3 data collection, management, and calculations
- Third-party verification and support
- Science-based target setting
- Internal and value chain ESG target-setting and engagement
- Carbon neutral and mitigation planning, strategy, and solutions

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