



THE CLIMATE
CHOICE

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PROJECT ENGINEERS & CONSULTANTS

Getting Started with Carbon Accounting for Suppliers (including Free Tools)

" UNDERSTANDING A COMPANY'S
GREENHOUSE GAS EMISSIONS IS THE
FIRST AND MOST IMPORTANT STEP
IN THE DECARBONIZATION JOURNEY."



LARA OBST
Co-Founder & Chief Climate Officer
THE CLIMATE CHOICE

Foreword

Dear Suppliers,

Welcome to our guide „Getting started with Carbon Accounting for Suppliers (including Free Tools)“.

Understanding a company’s greenhouse gas emissions is the first and most important step in the decarbonization journey. As Co-founder of The Climate Choice, I'm excited to support your journey towards becoming a climate preferred supplier and a strategic partner for your customers in the transition to a low carbon economy.

This free resource offers the background and a list of free tools tailored to suppliers like you and to get started with carbon accounting. Embrace these practices not just for the planet, but also for the longevity of your business in a low carbon economy.

Thank you for joining us in creating a greener future.



LARA OBST
Co-Founder & Chief Climate Officer
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Carbon Accounting

Carbon accounting has become increasingly important for businesses in recent years, particularly when it comes to addressing challenges related to climate change. It is now considered a crucial aspect of sustainable business practices.

Carbon accounting is an essential process that helps to measure the amount of greenhouse gas emissions produced by individuals, institutions, and organizations over a certain period. This is important because it allows individuals and organizations to understand their carbon footprint, in order to take in a next step necessary actions to reduce their impact on the environment.

In simple terms it relates to, “What gets measured, gets managed”.

Imagine putting in all the effort to maintain a healthy lifestyle by exercising and eating right. However, stepping on a scale and measuring your progress can make it easier to determine if you need to reduce your weight or adjust your routine to achieve your goals.

The same goes for carbon accounting; the process urges companies to sum up all their emission data, by completing a GHG inventory, to get a direction and a measurable target to aim for.

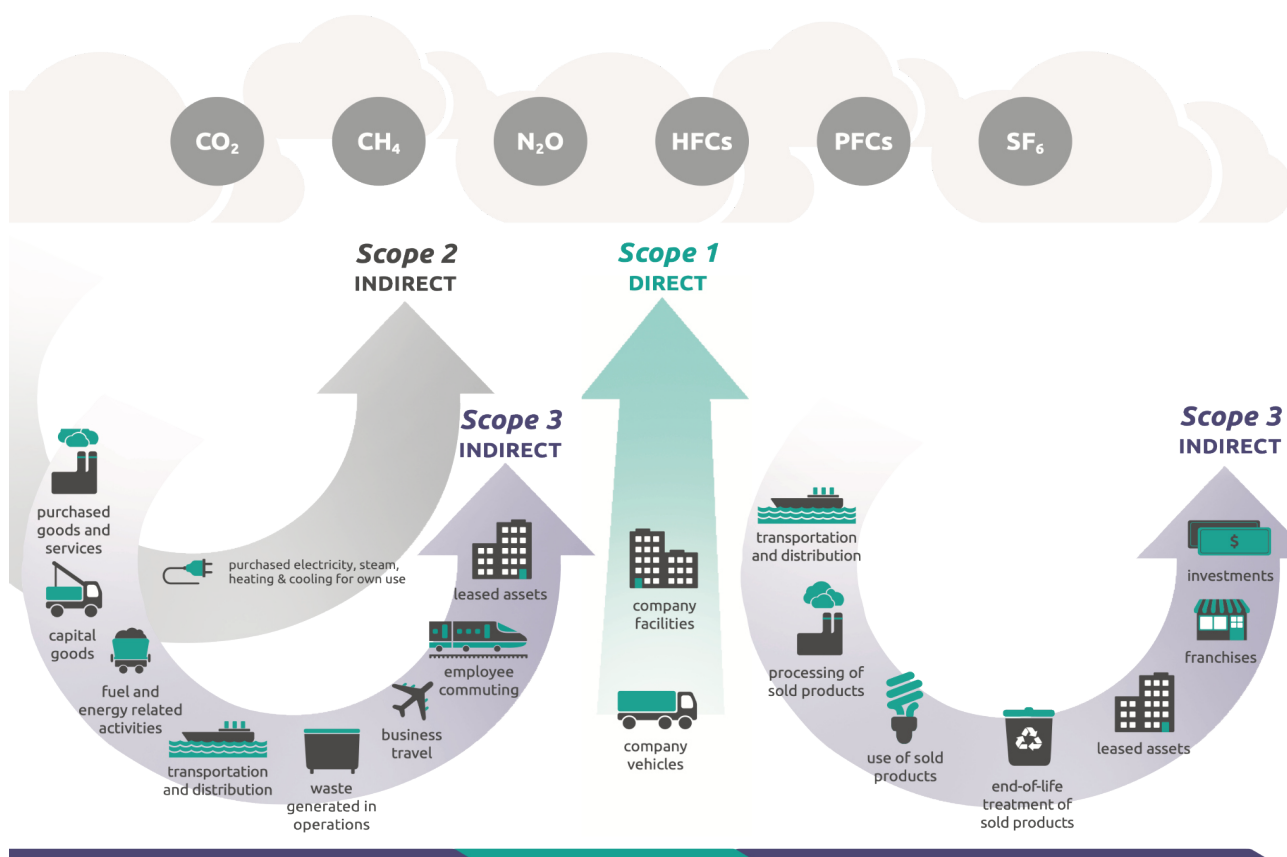
So far so simple, but when considering carbon accounting, there are 2 important elements required:

- Data related to emissions sources
- Emission Factors

What is a GHG Inventory?

A greenhouse gas (GHG) inventory is a list of emission sources and the associated emissions quantified using standardized methods. Following the GHG Protocol, this involves all three Scopes of corporate emissions: Scope 1 (direct emissions from energy usage, buildings, and own fleets), Scope 2 (indirect emissions from purchased electricity, energy, heat, or steam), and Scope 3 (including the 15 categories of the so-called ‘value chain emissions’ up- and downstream of a company). Especially Scope 3 emissions play a major role in the GHG inventory. They typically make up to 90% of company’s total corporate emissions but are produced and managed by suppliers or customers. For instance, purchased goods and services (Scope 3.1) or the end of life of sold products (Scope 3.12).

FIGURE 1: OVERVIEW OF GHG PROTOCOL SCOPES AND EMISSIONS ACROSS THE VALUE CHAIN



Source: [Technical Guidance for Calculating Scope 3 Emissions](#)

What are Emission Factors?

Emission factors represent the amount a specific pollutant or greenhouse gas released from a particular product or activity. They are used to quantify emissions generated from various sources or activities. For instance, an emission factor might express the amount of carbon dioxide (CO₂) produced per kilowatt-hour of electricity generated from a specific type of fuel, or the amount of methane (CH₄) released per mile driven by a vehicle using a particular type of fuel. These factors serve as essential tools in calculating emissions in inventories or assessments.

After all necessary information and data has been gathered the proper emission estimates can be drawn simply by using the appropriate methodology.

Why do Companies need to have a Carbon Accounting Process?

Companies need to have a carbon accounting process for various reasons, but two major reasons currently stand out: Reducing Emissions and Regulatory Compliance.

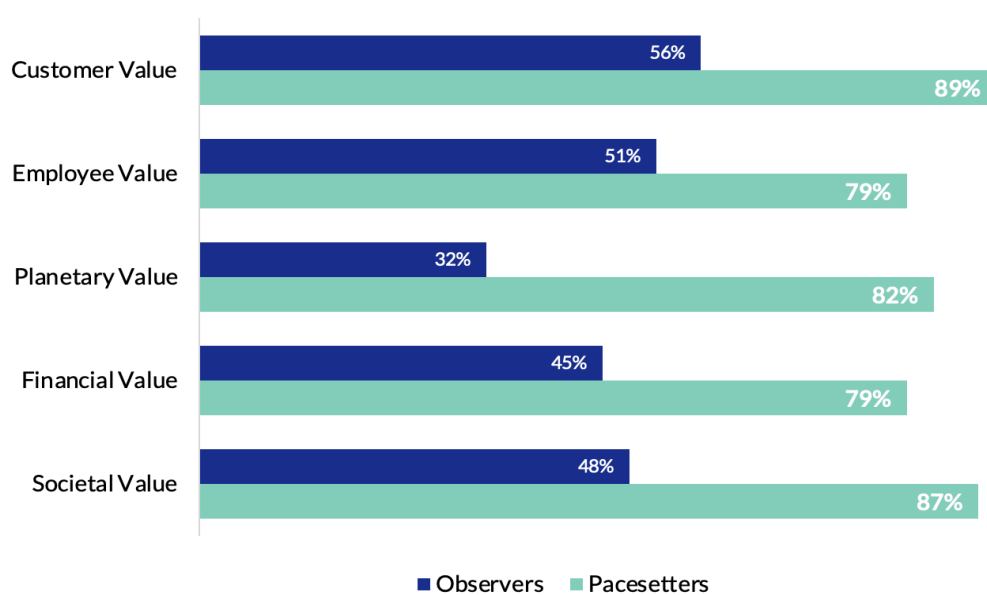
1. REDUCING EMISSIONS:

- Initiating emission reductions implies to measure them first. The measurement results help to identify greenhouse gas emission sources, which is the first step towards managing and reducing them.
- This is important for companies that are looking to reduce their environmental impact, meet regulatory requirements, or respond to customer expectations.
- By quantifying these emissions through carbon accounting, businesses can understand their impact, set targets accordingly in a next step (e.g. via the Science Based Target Initiative) and identify risks as well as opportunities that enhance reputation and market positioning.

According to the EY 2023 Sustainable Value Study¹, „Companies taking the most action to address climate change (Pacesetters) are 1.8 times more likely to report higher-than-expected financial value from their climate initiatives, compared to those taking the least action (Observers).“

- The participating companies were categorized by 32 actions to address climate change and were ranked from “no plans to do” to „completed.” The companies were then grouped into pacesetters, „explorers“, and „observers“,
- Pacesetters are reporting that moving forward on sustainability is generating higher-than-expected value across various dimensions, as shown below in Figure 2.

**FIGURE 2: PACESETTERS VS. OBSERVERS
(% OF REPORTING HIGHER-THAN-EXPECTED VALUE CAPTURED)**



Source: [EY 2023 Sustainable Value Study](#)

¹[EY 2023 Sustainable Value Study](#)

2. REGULATORY COMPLIANCE:

The introduction of international regulations and legislation is leading to an increased pressure for climate action, and alignment with the 1.5°C Paris Agreement:

Due to regulations and legislation like the Corporate Sustainability Reporting Directive (CSRD), the Carbon Border Adjustment Mechanism (CBAM) and the German Supply Chain Due Diligence Act (LkSG), companies nowadays need to have a much more detailed understanding of their entire value chain.

As it is increasingly becoming mandatory to disclose information on climate metrics and actions, more and more companies require the information also from their suppliers and business partners, to report and manage their value chain emissions. Consequently, companies are making climate-impact part of supplier due diligence, business development as well as investment and buying decisions.

What are Advantages of Carbon Accounting?

When companies aim to transition towards Net-Zero within their entire value chain, the carbon accounting process plays a major role in defining goals and actions. Thereby, the following 6 key advantages of carbon accounting increases the company's stake.

1. COST SAVINGS:

Understanding and managing carbon emissions often leads to increased energy efficiency and resource optimization. By identifying areas and hotspots where emissions can be reduced, businesses can cut down on energy and resource consumption, leading to cost savings in the long run.

2. COMPETITIVE ADVANTAGE:

Being environmentally responsible can enhance a company's reputation and attractiveness to customers, investors, employees, and stakeholders who prioritize sustainability. It can certainly differentiate a business in the market and attract environmentally conscious customers.

3. INNOVATION AND EFFICIENCY:

Carbon accounting involves assessing operations and processes to reduce emissions. This encourages innovation in developing more efficient technologies and processes, fostering a culture of continuous improvement within the organization.

4. RESILIENCE TO CLIMATE RISKS:

Understanding and managing carbon emissions allows businesses to anticipate and adapt to climate-related risks. By identifying vulnerabilities, companies can take proactive measures to strengthen their business model and resilience against climate impacts.

5. SUPPLY CHAIN MANAGEMENT:

Assessing the carbon footprint throughout the supply chain helps to identify emission hotspots and to work collaboratively with suppliers to reduce emissions. This promotes decarbonization across the entire supply chain, leads to a more resilient supplier base and enables the development of low carbon products.

6. REGULATORY COMPLIANCE:

With increasingly stringent environmental regulations, carbon accounting helps companies stay compliant with current and future legislation. It ensures that businesses are prepared for evolving environmental legislations.

Methodology

There are several methods for calculating greenhouse gas emissions. These methods are developed and designed to provide organizations support and measure their emissions accurately. The main types of methods include:

1. SCOPE 1 DIRECT EMISSIONS:

Activity Data Method: This method involves multiplying the quantity of a specific activity (e.g., Fuel Combustion) by an emission factor to calculate emissions. This includes emissions from the organization's own facilities, transportation, energy usage, and other activities directly controlled by the company. It involves monitoring and calculating emissions generated from actual day-to-day operations.

2. SCOPE 2 INDIRECT EMISSIONS:

LOCATION-BASED METHOD:

This method calculates emissions based on the average emission intensity of the electricity grids in the location where the organization operates. The locations include local, subnational, or nation boundaries.

MARKET-BASED METHOD:

This method allows organizations to account for environmental attributes of specific energy purchases, providing a more accurate representation of their environmental impact.

3. SCOPE 3 INDIRECT EMISSIONS:

LIKE SCOPE 1 ACTIVITY DATA METHOD:

Organizations use emissions factors to estimate emissions associated with various activities done in the entire value chain such as, business travel, waste generation, purchased goods and services etc.

SPEND-BASED METHOD:

This approach focuses on calculating emissions based on the monetary expenditures made by an organization, especially on goods and services. It considers the carbon emissions embedded in the products and services purchased. For instance, if a company buys products from suppliers, the spent-based method accounts for the emissions associated with the production and transportation of those products.

HYBRID METHOD:

The Greenhouse Gas Protocol refers Hybrid Method as the combination of multiple methods. In simple terms, by using the Hybrid method companies can calculate their emissions more accurately by combining industry average data with supplier specific data wherever the data is available.

FIGURE 3: SIMPLIFIED CARBON ACCOUNTING PROCESS



Table 1a and 1b gives a complete summary of the methods used for calculating greenhouse gas emissions.

TABLE 1A: COMPARISON OF ACTIVITY-BASED AND SPEND-BASED METHODS

ASPECT	ACTIVITY-BASED METHOD	SPEND-BASED METHOD
DEFINITION	Emission calculated based on specific activities.	Emissions calculated based on monetary expenditure.
DATA REQUIREMENT	Activity data. Process specific emission factors.	Financial data, sector specific emission factors.
COMPLEXITY	Major complexity arises when data is unavailable.	Relatively simpler to calculate.
ACCURACY	Provides maximum detail and accurate emissions at activity level.	Provides a general estimate of emissions based on financial data.
APPLICABILITY	Focused on organizations specific activities.	Suitable for businesses having no direct control over production.

Source: [GHG Protocol Scope 3 Guidance](#)

TABLE 1B: COMPARISON OF LOCATION-BASED AND MARKET-BASED METHODS

ASPECT	LOCATION-BASED METHOD	MARKET-BASED METHOD
DEFINITION	Emission calculated based on defined geographical locations.	Emissions calculated based on purchase of electricity from specific market or supplier.
METHOD	Emission representing average emissions from energy generation occurring within a defined geographic area and defined period.	Emissions derived from the GHG emissions rate represented in the contractual instruments that meet Scope 2 Quality Criteria.
APPLICABILITY	To all electricity grids in area.	To specific markets of differentiated electricity products.
USED CASES	Uses aggregate GHG performance of energy sources, irrespective of market and type.	Opportunities to influence electricity suppliers to provide more efficient and low emission source.

Source: [GHG Protocol Scope 2 Guidance](#)

These methods are flexible and scalable, allowing organizations to choose the most appropriate method, based on the availability of data and accuracy required for their specific circumstance.

How does The Climate Choice come into picture for your Company?

On average, emissions from the upstream supply chains are 11.4 times the emissions accounted for directly from the company's operations (CDP)². Hence, it becomes critical to account for and reduce the emissions accounted for by the supply chain. According to the Science Based Targets Initiatives (SBTi), Scope 3 emissions must be included in a company's near-term Targets if these emissions represent 40% or more of total scope 1, 2, and 3 emissions. Scope 3 targets must then cover a minimum 67% of total scope 3 emissions, per SBTi near-term Criteria.³ This emphasizes that without reducing those so-called 'Supply Chain' emissions, companies cannot achieve meaningful progress towards their Net-Zero.

This provides a major challenge in the corporate transition journey, as less than 10% of the procurement teams are trained in sustainability according to Boston Consulting Group (BCG)⁴. Working on supply chain decarbonization is complex, as it requires communication with and granular data from hundreds and thousands of suppliers. Since there is often a lack of climate maturity and emission data, consequently it is a large challenge to manage reduction efforts in the supply chain.

The Climate Choice plays a pivotal role in aiding companies to achieve their decarbonization objectives, offering a Software Platform that helps companies to engage suppliers and manage their granular data to accomplish climate targets in Scope 3.

With The Climate Choice, suppliers can easily share data with multiple customers and tackle the black box Scope 3 - to work collaboratively together with suppliers towards emission reduction.

For more information, please visit [The Climate Choice website](#).

² [Transparency to Transformation: A chain reaction](#)

³ [SBTi Supplier Engagement Guidance](#)

⁴ [The Climate Drive](#)

Getting Started - 8 Free Carbon Accounting Tools For Suppliers

Supporting you to get started with carbon accounting, you can find in the following an overview of eight free carbon calculators for businesses. These can help you to get a first estimation of emissions. Explore them closely to find out which one is the best fit for your needs based on the provided selection criteria. The calculators differ in terms of scope coverage, target group, sector focus and methodology. It is important to select an appropriate tool from the list depending on requirements and take first steps towards reducing climate impact. However this list provides only a starting point and it is strongly recommend to work with industry experts when establishing compliant reporting processes.

Table 2 provides an overview of each calculator, serving as a quick guide to help you determine the best fit for your needs. For a more thorough understanding, delve into the more detailed analysis provided below the table and information on the corresponding tool websites.

TABLE 2: LIST OF FREE CARBON ACCOUNTING TOOLS

ASPECT	SCOPES SPEC-TRUM	TARGET GROUP	SECTOR INCLUSIVITY	LINK
1. UNFCCC CALCULATOR	All 3 Scopes	Large, Medium & Small Businesses	All Sectors	Link
2. CARBON TRUST CALCULATOR	Scope 1 & 2	UK based Medium & Small Businesses	All Sectors	Link
3. SCOPE 3 ANALYZER	All 3 Scopes	Large, Medium & Small Businesses	All Sectors	Link
4. ECOCOCKPIT	All 3 Scopes	German based Large, Medium & Small Businesses	All Sectors	Link
5. COOL CLIMATE NETWORK CALCULATOR	All 3 Scopes	US based Small Businesses	All Sectors	Link
6. THE CLIMATECALC	All 3 Scopes & Product Specific	Large, Medium & Small Businesses	Print & Packaging	Link
7. ECOTRANSIT TOOL	Emissions from Transport	Large, Medium & Small Businesses	Transport Sector	Link
8. THE COOL* FARM TOOL	All 3 Scopes & Product Specific	Large, Medium & Small Businesses	Agriculture Sector	Link

1. GREENHOUSE GAS EMISSIONS CALCULATOR BY UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC):

- **BACKGROUND:**

The UNFCCC secretariat has prepared this Excel-based greenhouse gas (GHG) emissions calculator to provide the general public with a free and up-to-date methodology for estimating GHG emissions. It aims only to support organizations to estimate their GHG emissions in order to raise awareness and to promote climate action.

- **LINK:**

<https://unfccc.int/documents/271269>

- **REGION:**

Available for Businesses globally.

- **TARGETED AUDIENCE:**

Large, Medium & Small Businesses.

- **SCOPE SPECTRUM:**

It covers all the GHG emission accounting scopes 1,2 & 3.

- **SECTOR INCLUSIVITY:**

Developed to cater all sectors providing a detailed disclaimer on the use and functionality of the tool.

- **METHODOLOGY:**

Mainly follows UK Govt's Conversion factors for Company reporting.

2. CARBON TRUST'S CARBON FOOTPRINT CALCULATOR:

- **BACKGROUND:**

The Carbon Footprint Calculator of Carbon Trust has been designed to help UK based SMEs measure their corporate emission footprint following GHG Protocol Guidance, including direct emissions from fuel and processes (Scope 1 emissions) and those emissions from purchased electricity (or Scope 2 emissions) for the assets they operate.

- **LINK:**

<https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/sme-carbon-footprint-calculator>

- **REGION:**

Available for Businesses in United Kingdom.

- **TARGETED AUDIENCE:**

Medium & Small Businesses.

- **SCOPE SPECTRUM:**

It covers the GHG emission accounting scopes 1 & 2.

- **SECTOR INCLUSIVITY:**

Developed to cater all the sectors providing a detailed disclaimer on the use and functionality of the tool.

- **METHODOLOGY:**

Mainly follows UK Govt's Conversion factors for Company reporting.

3. SCOPE 3 ANALYZER:

- **BACKGROUND:** The Scope 3 Analyzer was developed as part of a research project with funding from the Ministry for the Environment, Climate and Energy Management Baden-Württemberg. It is carried out in cooperation with the think tank "Industrial Resource Strategies" at the Karlsruhe Institute of Technology (KIT), Systain Consulting GmbH and the companies Robert Bosch GmbH and Carl Zeiss AG. The tool focusses especially on the upstream emissions ("Scope 3 emissions") of raw materials and purchased goods.

- **LINK:**

<https://scope3analyzer.pulse.cloud/>

- **REGION:**

Available for Businesses globally.

- **TARGETED AUDIENCE:**

Large, Medium & Small Businesses.

- **SCOPE SPECTRUM:**

It covers all the GHG emission accounting scopes 1,2,3 upstream, with a focus on upstream Scope 3 emissions of raw materials and purchased goods.

- **SECTOR INCLUSIVITY:**

Developed to cater all the sectors, with special focus on the manufacturing industry.

- **METHODOLOGY:** Calculation of Scope 3 emissions (upstream) is based on a multi-regional input-output model. Input-output modelling represents a recognised calculation method which, in contrast to life cycle assessment, enables a simple, complete and also consistent calculation of greenhouse gas emissions across different product groups.

4. ECOCOCKPIT:

- **BACKGROUND:**

The ecocockpit is an online tool from Effizienz-Agentur NRW (Germany) for the quick and easy creation of a carbon footprint for an organization. It is possible to create production site-based-, process-based and product-based-carbon footprint calculations.

- **LINK:**

<https://ecocockpit.de/>

- **REGION:**

Available for Businesses in Germany incl. Trainings.

- **TARGETED AUDIENCE:**

Large, Medium & Small Businesses.

- **SCOPE SPECTRUM:**

It covers all the GHG emission accounting scopes 1,2 and 3 as well as product specific emissions.

- **SECTOR INCLUSIVITY:**

Developed to cater all the sectors providing a detailed disclaimer on the use and functionality of the tool.

- **METHODOLOGY:**

The tool expresses the use of Greenhouse Gas Protocol standard methodology.

The methodology is transparent & comes with a descriptive disclaimer up on functionality.

5 COOL CLIMATE NETWORK BUSINESS CALCULATOR

- **BACKGROUND:**

The CoolClimate Network (CCN) is research consortium at the University of California, Berkeley. CCN researches and develops cutting-edge carbon footprint management tools for households, small businesses, schools and communities in the U.S. and Internationally.

- **LINK:**

<https://coolclimate.berkeley.edu/business-calculator>

- **REGION:**

Available for small businesses in United States of America

- **TARGETED AUDIENCE:**

Small businesses.

- **SCOPE SPECTRUM:**

It covers the GHG emission accounting scopes 1,2 & 3.

- **SECTOR INCLUSIVITY:**

Developed to cater small businesses providing a fast and simple estimation of a companies' carbon footprint.

- **METHODOLOGY:**

It uses Environment Protection Agency (EPA) data, market restricted but effective and transparent with data and methodology.

6. THE CLIMATECALC:

- **BACKGROUND:**

ClimateCalc is a calculation tool that provides customers and manufacturers with the relevant information concerning the total carbon footprint of a print and packaging product. It includes Scope 1, 2 & 3 emissions as recommended by the Greenhouse Gas Protocol and several international industry and ISO standards.

- **LINK:**

<https://www.climatecalc.eu>

- **REGION:**

Available for Businesses globally.

- **TARGETED AUDIENCE:**

Large, Medium & Small Businesses.

- **SCOPE SPECTRUM:**

It covers all the GHG emission accounting scopes 1,2 and 3 as well as product specific emissions.

- **SECTOR INCLUSIVITY:**

ClimateCalc is a tool for calculating the carbon footprint of both the company and a specific print or packaging product.

- **METHODOLOGY:**

ClimateCalc is a calculation tool based on the European graphic standard for carbon calculation defined by the European trade association Intergraf. According to ClimateCalc, Intergraf's standard is the only international standard in the world which has defined specific boundaries for carbon footprint calculations of printing companies and printed products. The ClimateCalc calculation tool is in compliance with ISO 14064-1, ISO 16759 and the international Green House Gas Protocol (GHG Protocol). ClimateCalc combines verified company data with verified generic data.

7. ECOTRANSIT TOOL:

- **BACKGROUND:**

The EcoTransIT World Initiative (EWI) aims at continuously developing and harmonising the emission calculation methodology for the global transport sector. EcoTransIT World (Ecological Transport Information Tool for Worldwide Transports) calculates the environmental impacts for any freight transport service .

- **LINK:**

<https://www.ecotransit.org/en/emissioncalculator/>

- **REGION:**

Available for businesses globally.

- **TARGETED AUDIENCE:**

Large, Medium & Small businesses in the Transport Sector.

- **SCOPE SPECTRUM:**

EcoTransIT World provides energy consumption and GHG Emissions for trucks, trains, ships and airplanes.

- **SECTOR INCLUSIVITY:**

Developed to cater the Transport sectors providing a detailed disclaimer on the use and functionality of the tool.

- **METHODOLOGY:**

EcoTransIT World is accredited for the GLEC framework and complies with EN 16258 and the GHG protocol (Corporate Standard).

8. THE COOL FARM TOOL:

- **BACKGROUND:**

The Cool Farm Tool is science-led, non-profit community brings supply-chain network on a global scale. The Cool Farm Tool was developed by Unilever in collaboration with Prof. Pete Smith of University of Aberdeen, to assist farmers in reducing their climate impact.

- **LINK:**

<https://coolfarm.org/the-tool/>

- **REGION:**

Available for Businesses globally.

- **TARGETED AUDIENCE:**

Farmers and Businesses in the Agriculture sector.

- **SCOPE SPECTRUM:**

It covers all the GHG emission accounting scopes 1,2 and 3 as well as product specific emissions.

- **SECTOR INCLUSIVITY:**

Developed to cater the agriculture sectors providing a detailed disclaimer on the use and functionality of the tool.

- **METHODOLOGY:**

The foundation of the Cool Farm Tool relies entirely on peer-reviewed empirical research, drawing from a diverse array of published data sets and IPCC methods.

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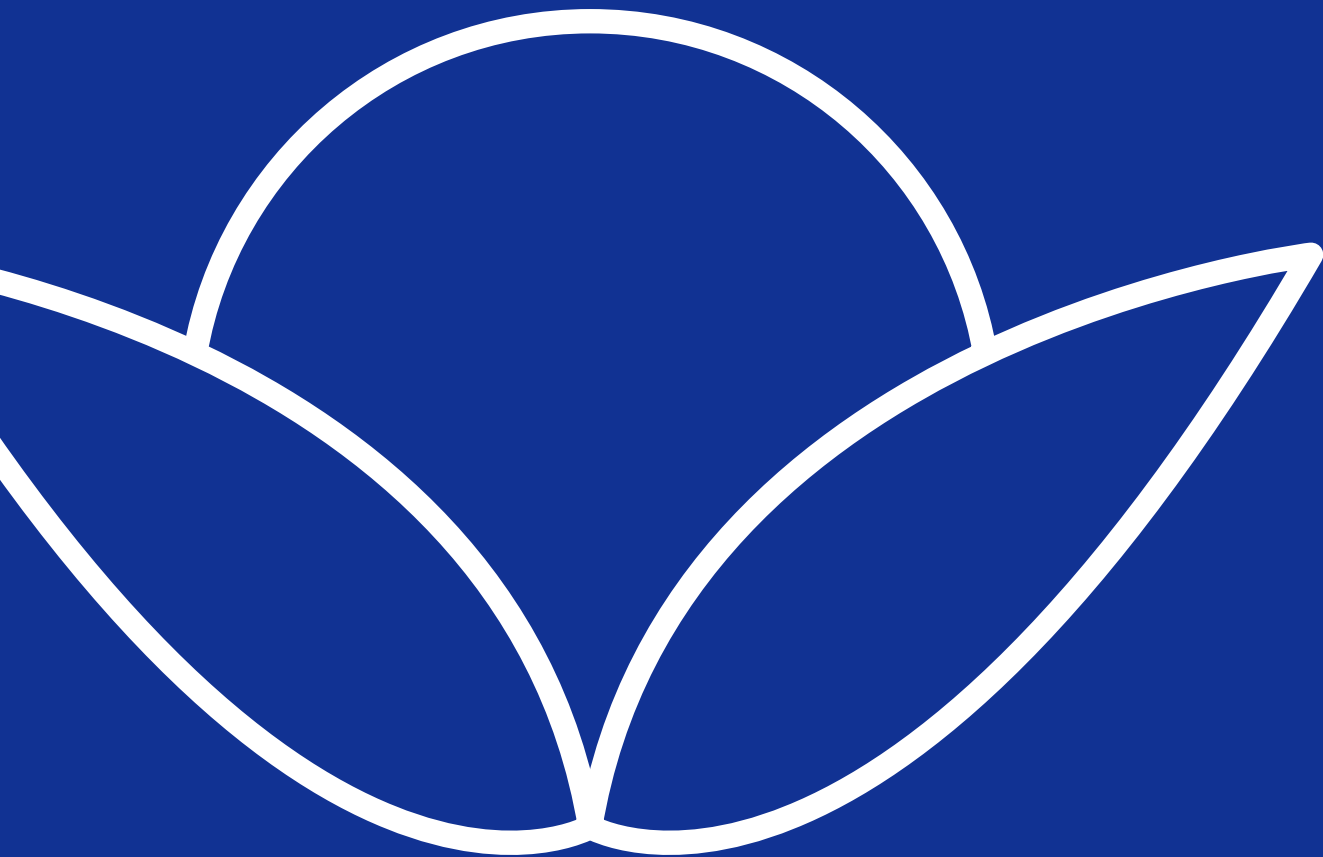
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