



Carbon Footprinting: What, Why and How?

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What?

Carbon footprinting is beyond the buzz phrase stage. It was a buzz phrase 15 to 20 years ago. It's now an established part of business practice and not a day goes by without a news story related to the subject. But there is still uncertainty about what exactly it means and how to go about it.

A carbon footprint is the total greenhouse gas emissions (GHG) caused directly and indirectly by a person, organisation, event or product.

Why?

There are three principal reasons why a responsible business is likely to be already undertaking work to calculate its carbon footprint, or at least embarking on that journey:

- **Compliance** – legislation is increasingly being enacted to mandate the monitoring and reporting of GHG emissions by companies. In [2015](#), the World Resources Institute (WRI) reported that at least 40 countries had mandatory emissions reporting programmes in place, with several subnational programmes in addition. That number has surely increased significantly since then. The schemes have highly variable criteria for inclusion and specific compliance requirements, which presents challenges for businesses with multinational operations.
- **Stakeholder expectations** – customers will ask if you are doing it and may dig further for specific data, performance metrics or other evidence. Financial covenants are increasingly being tied to carbon performance. Employees and potential recruits are likely to want to know that they work for, or are joining, a sustainable business. These factors have led to many businesses publishing annual sustainability reports on a voluntary basis. A carbon footprint is a key component of such a report. Some report to the CDP (formerly the Carbon Disclosure Project), perhaps prompted by a member of CDP's [supply chain](#) programme.
- **The moral case** – many people need no further driver than the scientific evidence that climate change is one of the greatest threats of our times to want to do their bit towards mitigating that threat.

This article only covers the measuring and reporting of emissions, which of course is not the solution. We need considerable cuts in emissions, as soon as possible. But, as the adage goes, one can only manage what one can measure. The ability to measure emissions in a reliable way is a vital part of the process. We'll discuss what constitutes 'reliability' shortly.

How?

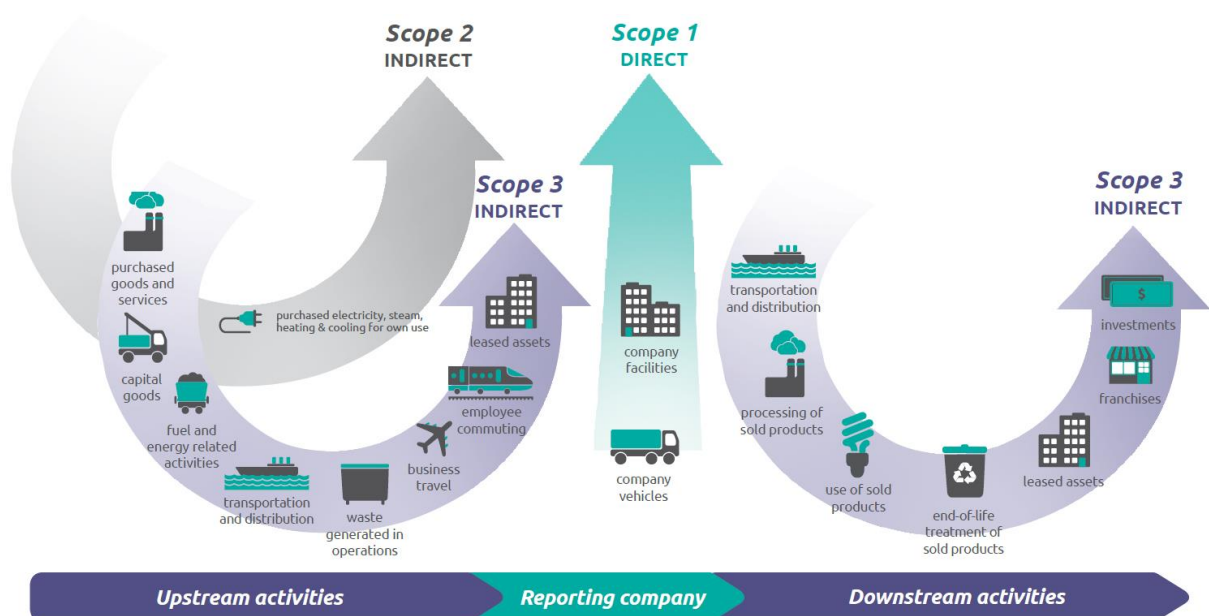
The answer to the question 'what method should I use to calculate my business' carbon footprint?' is – in the great majority of cases – the [GHG Protocol Corporate Standard](#) (GHGP CS). This standard is 20 years old (though has been updated and added to several times) and was developed by a partnership of the WRI and the World Business Council for Sustainable Development. According to

its own material, it “provides the accounting platform for virtually every corporate GHG reporting program in the world” and “In 2016, 92% of Fortune 500 companies responding to the CDP used GHG Protocol directly or indirectly through a programme based on GHG Protocol”.

Although, as previously mentioned, national mandatory reporting schemes will each have subtle differences in their requirements, if you build a monitoring and reporting system based on the GHGP CS, you will be 90%+ of the way there. You will be able to make the subtle tweaks, e.g. on a country-by-country basis, to meet every need.

The GHGP CS features the following key elements:

1. **The principles of GHG accounting and reporting:** relevance, completeness, consistency, transparency and accuracy. These underpin all aspects of reliable GHG accounting and reporting. Their application will ensure that the GHG inventory constitutes a true and fair representation of the company’s emissions. They should be at the forefront of any decision related to the carbon accounting process.
2. **Setting organisational boundaries:** what constitutes the entity whose emissions you are calculating? How to deal with joint ventures, subsidiaries and investments.
3. **Setting operational boundaries:** identifying emissions associated with the company’s operations, categorising them as direct and indirect emissions, and choosing the scope of accounting and reporting for indirect emissions. Introduces the scopes of emissions:
 - Scope 1 – direct emissions that occur from sources that are owned or controlled by the company. Examples: emissions from fuel use in the company’s own vehicles, vessels or equipment.
 - Scope 2 – indirect emissions from the generation of purchased electricity or heat consumed by the company. Scope 2 emissions physically occur at the facility where the electricity or heat is generated. Example: emissions from electricity purchased (generated by others) to heat and power company premises.
 - Scope 3 – indirect emissions that are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Examples: emissions from activity undertaken by subcontractors, extraction and production of purchased materials, transportation of purchased fuels and use of sold products and services.



Overview of GHG Protocol Emissions Scopes Across the Value Chain [Source: GHG Protocol](#)

Mandatory reporting will always focus on scopes 1 and 2. These are the emissions over which a company has the greatest level of control. Scope 3 emissions are a potentially huge and variable dataset. They are an optional reporting category under the standard. Many reporting schemes will encourage companies to demonstrate that they understand their major scope 3 emissions, and to quantify and control them to the extent reasonably practicable. A company's initial focus should always be on getting its scope 1 and 2 inventory in order before delving into scope 3.

- 4. Tracking emissions over time:** how to deal with changes in operational or organisational boundaries (for example acquisitions and divestments), methodology and other changes to maintain consistency over time or, in other words, to keep comparing "like with like".
- 5. Reporting:** how to report the calculated emissions in line with the principles; what is required (for compliance with the standard) and what is optional.

The standard also has guidance on identifying and calculating emissions, managing inventory quality; accounting for GHG reductions; verification of emissions; and setting targets.

The standard is accompanied by a supplementary [standard on scope 3 emissions](#); [guidance notes](#) specific to scopes 2 and 3 and the estimation and reporting of avoided emissions; and a range of useful [calculation tools](#) – some sector- or country-specific, others more widely applicable.

What other methods are there?

The GHGP CS is the parent of all GHG accounting methods. Most subsequent methods are substantially based on the standard. Indeed there is a specific '[Built on GHG Protocol](#)' badge recognising guidance and tools that conform with GHGP standards. Other methods you may come across are:

[ISO 14064-1 \(2018\)](#): the ISO standard for the quantification and reporting of GHG emissions at the organisation level. This standard's requirements are generally consistent with, and in most cases are derived from, the GHGP CS. [This U.S. EPA-sanctioned article](#) opines that "though different in a few minor areas, the protocol and the ISO standard are complementary documents with ISO identifying what to do and The GHG Protocol explaining how to do it. Organisations developing GHG inventories, especially those that will seek independent verification, can benefit from using both the standard and the protocol as references." However, the GHGP CS contains both standard (mandatory, 'what to do') and guidance (non-mandatory, 'how to do it') elements with the two being clearly delineated. Verification is covered in a dedicated chapter. Unless your stakeholders insist on the ISO badge, there really is no need for ISO 14064.

The U.K. government's [environmental reporting guidelines](#): these have wider scope than just GHG emissions, but the GHG aspects are based on the GHGP CS and refer back to it on many occasions. The guidance incorporates a section specific to the U.K.'s mandatory 'Streamlined Energy and Carbon Reporting' system, which qualifying companies should refer to, but, for the basic GHG accounting aspects, a system built on the GHGP CS will meet the requirements of the U.K. guidelines. The guidelines are, however, accompanied by a comprehensive [set of emission factors](#), specific to the U.K. and updated every year, which are a vital resource for those companies with U.K. operations.

[Bilan Carbone](#): a French method (available in French or English) and suite of spreadsheet tools originally developed for ADEME, the French environment agency, and now under the custody of the not-for-profit Association Bilan Carbone. The emission factors are GHGP compatible. Full access to the tools requires a licence and mandatory training (as a quality control measure). Although I do not have experience of using Bilan Carbone, it seems similar to the U.K. guidelines in terms of

usefulness, in that those organisations with substantial French operations will almost certainly need access to the France-specific emission factors, but the general methods and principles are the same as the GHGP CS's and, therefore, for those with multinational operations, the GHGP CS provides the wider recognition.

Current practice in IPLOCA

In late 2021, IPLOCA conducted a survey of a small number of members to establish the methods currently used for GHG accounting and whether they had related targets in place. Eighteen companies were asked, but only seven responded:

- One member stated that they were using the GHGP CS
- One described a method that looks very much like the GHGP CS but did not specifically mention a published method
- One member, with headquarters in France, is using Bilan Carbone
- Three members described methods involving the collation of fuel consumption data and the use of emission factors to calculate GHG emissions. This is a fundamental part of any GHG calculation method. For the purposes of reliability in the eyes of stakeholders, however, it is recommended that a specific methodology is adopted to demonstrate that the GHG accounting is in line with the principles described previously in this article. Of particular importance is the methodological and transparent setting of organisational and operational boundaries
- The remaining responder stated that they were not yet carrying out GHG accounting but intended to start doing so imminently.

The three responders who described specific methods all stated that they had GHG targets; the other four declared that they did not.

From such a small sample size, it is difficult to be confident about the prevalence of practices in the wider membership but, at face value, the results indicate that the IPLOCA membership has considerable work to do to establish strong GHG accounting, benchmarking, reporting and targeting practices that are likely to satisfy all stakeholders and keep the sector's sustainability credentials at a level that it can be proud of.

IPLOCA's HSE & CSR Committee is currently considering options to coordinate and promote such action and would welcome your feedback and suggestions. Please contact the HSE & CSR committee, hse@iploca.com.

Richard Appleyard has over 20 years of experience with RSK in GHG & energy management, pollution prevention & control and air quality for major energy, pipeline and industrial projects. RSK offers a full carbon footprinting and emissions reduction service. For more information contact Richard at rappleyard@rsk.co.uk.