



Measuring the Contribution to Decarbonization of Customers: The Need for Coherent Industry Standards

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The Need to Develop A Robust Industry Standard on Decarbonization of Customers

The private sector is at the heart of the race against global climate change. To limit global temperature rise to no more than 1.5°C above pre-industrial levels, companies must not only significantly reduce their own carbon footprint – they must also develop and bring to market the products and services that will help decarbonize the global economy.

Customers and other stakeholders are increasingly demanding proof of the decarbonization impacts created by products and services. The ability to compare various products and services based on their energy efficiency is already commonplace; it will soon be extended to all products and services based on the amount of greenhouse gas emissions reduced¹ or avoided².

However, despite increasing interests in understanding how products and services can reduce or avoid emissions, no international standard is currently available or applicable for businesses, creating a gap in consistent and credible measurement – as well as transparent reporting. The World Resources Institute, one of the world’s authorities on greenhouse gas accounting, raised the question back in a 2013 article, “[Do We Need a Standard to Calculate Avoided Emissions?](#)” The following year, 70 percent of the 1,793 companies that responded to CDP³ indicated that the use of their products by a third party “avoided” emissions, but many were “unverifiable or inaccurate” ([WRI White Paper 2019](#)).

Currently, we observe a plethora of practices that are reminiscent of accounting before a standard GHG⁴ Accounting Protocol or target-setting before the [Science-Based Targets Initiative](#). Undefined terms are bandied about (e.g. Scope 4) or used interchangeably (e.g. avoided emissions and reduced emissions), and companies make claims without disclosing their methods of calculation.

While many companies are investing heavily in the development of new products and solutions, the lack of a coherent, recognized methodology to evaluate the decarbonization impact of their products and services may hinder the creation and adoption of much needed solutions to limit emissions. Rather than wring our hands of this issue or make non-defensible claims, we have created a **Leadership Group** on decarbonization of customers to set principles and guidelines as a service to all fields that require better accountability and measurable standards to ensure carbon-mitigating efforts are accurately portrayed. **Founding members of the Leadership Group initially convened by ENGIE consist of three companies – [ENGIE](#), [Saint-Gobain](#) and [SUEZ](#) - supported by experts from various entities** such as [Entreprises pour l’Environnement \(EpE\)](#), the [Solar Impulse Foundation](#) and the [World Business Council for Sustainable Development \(WBCSD\)](#), among others. We call on other likeminded companies and organizations to join forces and be a part of this group that will help move the world forward with a more equitable approach to decarbonization of customers.

¹ GHG emission reduction: Quantified decrease in greenhouse gas (GHG) emissions between a baseline scenario and the GHG project [ISO 14064-2 - 3.1.7]

² GHG emission avoided: GHG emission reduction that occurs outside the organizational boundaries of the reporting organization as a direct consequence of changes in the organization’s activity, including but not necessarily limited to the emission reductions associated with increases in the generation and sale of electricity, steam, hot water or chilled water produced from energy sources that emit fewer greenhouse gases per unit than other competing sources of these forms of distributed energy [ISO 14069 - 3.1.5]

Avoided emissions are emission reductions that occur outside of a product’s life cycle or value chain, but as a result of the use of that product [GHG Protocol, 2014. GHG Protocol Standard on Quantifying and Avoided Emissions, Summary of online survey results]

³ Carbon Disclosure Project.

⁴ GHG: Greenhouse gas. GHGs include carbon dioxide (CO₂), methane, (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Cross-Industry Principles for Measuring the Decarbonization of Customers

The concept of measuring the contribution to decarbonization of customers (also known as avoided emissions from a product or service) is relatively simple: you compare the emissions of your customers resulting from the use of a product or service to what would have happened without the use of the product or service – i.e. to a baseline scenario⁵. This ‘wedge’, shown on **Figure 1**, represents the “avoided emissions”. However, in practice, this seemingly simple calculation is fraught with uncertainty and can be quite daunting – as well as misleading or even flat out wrong. There is a lack of common accounting principles or sector specific guidelines for each type of product or service offered that is used by customers.

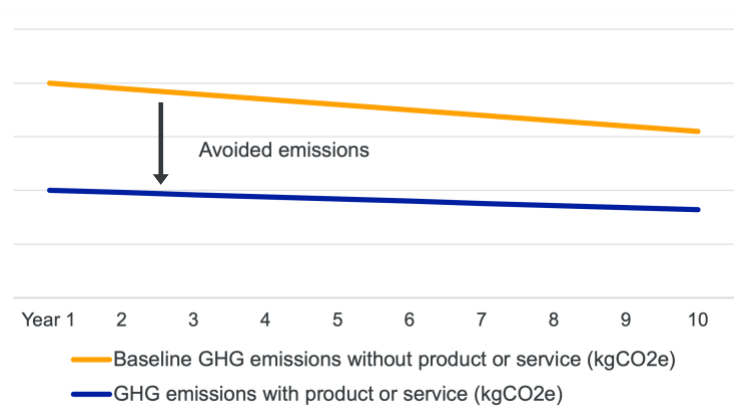


Figure 1: Schematic decarbonization of customers

Building upon a strong methodological foundation of over 40 core documents⁶ we propose a **first set of common accounting principles that could be used across industries**. Each of these principles must be:

- **Practical** – to be easily adopted by companies across industries, regardless of size, to design measurement guidelines specific for their products and services
- **Simple** – to be understood and adopted at all business levels of a company, including by employees who are not versed in carbon accounting but are directly involved in designing or delivering solutions to customers.

The following principles were co-developed through an iterative and agile process, constantly challenging and testing them using real projects.

⁵ Baseline scenario definitions:

ISO : Hypothetical reference case that best represents the conditions most likely to occur in the absence of a proposed GHG project. [ISO 14064-2- 3.2.6]

GHG Protocol: A hypothetical scenario for what GHG emissions, removals or storage would have been in the absence of the GHG project or project activity. [GHG Protocol - A Corporate Accounting and Reporting Standard]

⁶ Including existing frameworks such as work published by the World Resources Institute (WRI) in January 2019, “Estimating and Reporting the Comparative Emissions Impacts of Products”, the “GHG Protocol for Project Accounting” issued in 2003 by WRI and WBCSD, the “Avoided Emissions Framework” from Mission Innovations Net-Zero Compatible Innovations Initiative, the Methodological guide “Quantifying the impact of an emission reduction action on GHGs” produced in 2017 by the French Agency for Ecological Transition (ADEME, for its acronym in French), and the “Avoided emissions – Companies assess their climate solutions” Report published in March, 2018 by Entreprises pour l’Environnement (EpE).

Principle 1: Scope of Assessment

Products or services that contribute to decarbonization of customers are the products and services that have a direct and measurable impact on emissions, and those that are unique to their value chains. For all products and services in the same value chain, the contribution should be 100% of the emissions avoided through usage of the product or service that has the direct and measurable impact. All products and services in the same value chain should refer to their ‘contribution’ to decarbonization of customers⁷.

‘Direct and measurable’ serves as a pragmatic test to identify which products and services should be considered when measuring avoided emissions of a value chain. This approach recognizes that products and services that have a direct and measurable impact on emissions are typically part of complex value chains, often with many associated products and services that are critical to achieving the decarbonization impact. Deciding which product or service contributes to avoided emissions and by how much is usually a difficult question with no obvious answer. We consider only the products and services that are unique to the value chain as contributors to avoided emissions. By contrast, raw inputs, or standard products and services which are not unique to their value chain, are not considered to contribute to avoided emissions. In addition, to avoid arbitrarily assigning an impact to specific products and services in a value chain, we propose to consider 100% of avoided emissions from the product or service that has the direct and measurable impact and always refer to their ‘contribution’ to decarbonization of customers.

For example, when considering wind power, the product or service that has a direct and measurable impact on emissions is the windfarm itself. The windfarm should therefore be used to measure the avoided emissions. However, a windfarm involves numerous products and services unique to the windfarm value chain. These include parts, such as wind turbine blades and generators, but also services, such as project development and installation. All such products and services can claim to contribute to 100% of the decarbonization impact of the windfarm.

⁷ Products or services leading to avoided emissions can serve one or several customers.

In contrast, if we take the example of a building material, such as concrete, a standard grade of concrete that is used in the value chain of another product or service, such as the wind power example above, should not be considered to contribute to the avoided emissions as it is not unique to its value chain. However, if a new type of concrete has emissions avoidance properties versus standard concrete, then this new concrete has a direct and measurable impact and its decarbonization of customers contribution should be measured. As with the windfarm example above, other products and services unique to the new concrete value chain should also be considered to contribute to 100% of the concrete decarbonization impact.

Principle 2: Credible Baseline

Select a credible baseline corresponding to the most likely alternative in the absence of the product or service provided.

To ensure credibility and avoid overstating the impact of the product or service provided, select the most conservative baseline from the three options below:⁸

1. Baseline that is defined by or in collaboration with the customer, specific to a given project/contract.
2. Baseline that represents the local Minimum Regulatory Requirements (MRR) for a newly commercialized or commissioned product/service.
3. Baseline representing the average performance of existing technologies used in the country.

For example, a company replaces an existing boiler that has a remaining lifespan of two years. The company should select the MRR as a baseline over the entirety of the new boiler’s lifetime if the MRR is more conservative than the average installed technologies in the country of operation.

When calculating decarbonization of customers over time – including for the purpose of target setting – such baseline options should be projected into the future. For instance, the decarbonization impact of a low-carbon product may be greater now than in 2030 as the economy progressively decarbonizes; thus, a conservative baseline trajectory relevant to the product should be used.

⁸ For projects eligible to carbon credits or white certificates, the baseline is the one defined by the standard.

Principle 3: Calculation Consistency

The emissions calculations should be consistent between the baseline and the product/service delivered by the company. Companies should account for the full life cycle GHG emissions (that can be assessed as part of a Life Cycle Assessment, or LCA) whenever possible and should use direct emissions as a default when LCA data is not available.

For example, a company installing insulated glass produced from post-consumer recycled content should use life cycle GHG emissions from the insulating glass being installed compared to the life cycle GHG emissions of a non-recycled glass defined as baseline, provided data is available for both the new and baseline solutions over their lifecycle.

Similarly, if a cloud computing company provides services that save carbon emissions compared to the average performance of existing technologies used in the country (for instance though low-carbon data centers), it should account for the full lifecycle GHG emissions when such data is available for both the company's infrastructure and the selected baseline.

Principle 4: Pragmatic Accounting

Adapt the accounting of avoided emissions based on the nature of the transaction with customers.

For products and services consumed via one-off transactions, account at the time of the transaction for the estimated avoided emissions over the lifetime of the product/service. In this case, the baseline should be a forecasted trajectory based on one of the options identified under Principle 3. When calculating such ex-ante cumulated impact, attention should be paid to avoid any overestimations. Indeed, it has been shown across industries that the average actual performance of products/services in use phase may be lower than manufacturing data or ex-ante assumptions. We therefore encourage the use

of a systematic correction factor specific to the product and services considered.

For products and services involving an ongoing contract, account for the actual avoided emissions on an annual basis until the end of the contract.

For example, if a company installs an energy efficiency lighting system in a building or factory and has a contract to operate it for 10 years, the company should account for avoided emissions on an annual basis for the 10-years of contract. In contrast, if a company produces energy efficient lighting equipment, the company should account for the estimated decarbonization of customers impact over the lifetime of the product (using a baseline trajectory) at the time of the transaction, and adopt a conservative correction factor based on known performance data.

Principle 5: Managing Double Counting

Acknowledge possible double counting of the contribution to decarbonization of customers across the value chain and avoid double counting intra-company.

Double counting of avoided emissions may exist across a value chain when several companies are contributing to a common decarbonization impact. This is similar to the GHG Protocol's approach regarding double counting of a single emission by more than one company as Scope 3⁹.

For example, Company A manufactures, installs and guarantees the performance of a biodigester for a client and accounts at the time of installation for the cumulative avoided emissions from the biodigester over its estimated lifetime. Company B operates the new biodigester on behalf of the client under a 15-year contract and accounts for the yearly avoided emissions from the biodigester over the duration of the contract. In this case, the decarbonization impact of the biodigester may be double counted as both Companies A and B have contributed to the same avoided emissions.

When consolidating and reporting on decarbonization of customers at company-level, the company should mitigate the risk of double counting its contribution to

⁹ GHG Protocol, 2011. Corporate Value Chain (Scope 3) Accounting and Reporting Standard. A supplement to the GHG Protocol Corporate Accounting and Reporting Standard. P 28.

avoided emissions by (1) excluding the contributions of products/services delivered to other entities of the reporting company; and (2) when several company entities deliver products/services that lead to a common decarbonization impact, retaining only the decarbonization impact of the entity that generates the highest product/service value.

For example, if a company's business unit A designs and installs a solid waste recycling plant while another business unit B operates the same plant under a 15-year contract, the company should only account for the decarbonization impact of the waste recycling plant as calculated by the entity generating the highest revenue from the project.

Principle 6: Transparent, Verifiable, and Separate Communication


The contribution to decarbonization of customers should be communicated transparently and verifiability, separately from company carbon footprint calculations. It should not be combined, added, or removed from a company's own carbon footprint.

Decarbonization of clients can become an important indicator of how companies contribute to decarbonize the economy beyond their own footprints. It is therefore critical to have transparent and verifiable communication with regard to avoided emissions from products and services. Information supporting calculations –including baseline, data used, and how the above principles were applied – should be made available to third parties.

The systematic measurement of avoided emissions from products and services is yet to be scaled; a ramp up period may therefore be required to deploy such calculations within a company. Thus, companies are encouraged to adopt a 'learning by doing' approach to continuously improve their calculation scope and accuracy over time.

It should also be recognized that decarbonization of customers is distinct from the assessment of a company's own emissions. Its measurement is based on the notion of 'contribution' estimated at 100% of total impact and cannot be combined, added or removed from a company's Scope 1, 2, or 3 emissions.





Next Step: Refining and Scaling The Adoption of Decarbonization of Customers Accounting Principles Across Industries

By defining principles for the measurement of decarbonization of customers that may be applied across economic sectors, the Leadership Group has aimed to set the foundation for the development of a standard on how to calculate a company's contribution to the decarbonization of customers. The next step is to refine the above accounting principles, scale the adoption of these common principles by companies across industries, and develop sector-specific guidelines based on these principles. This entails disseminating the principles across industrial organizations and supporting companies interested in their adoption. The Leadership Group will notably seek to establish a platform to support further methodological developments and to share best practices on how to embed the proposed accounting methodology within a company's operations. Finally, we invite all interested companies and organizations to join this initiative, and work with standardizing bodies to define norms for decarbonization of customers and harmonize accounting methodologies across industries.

Join Our Movement



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