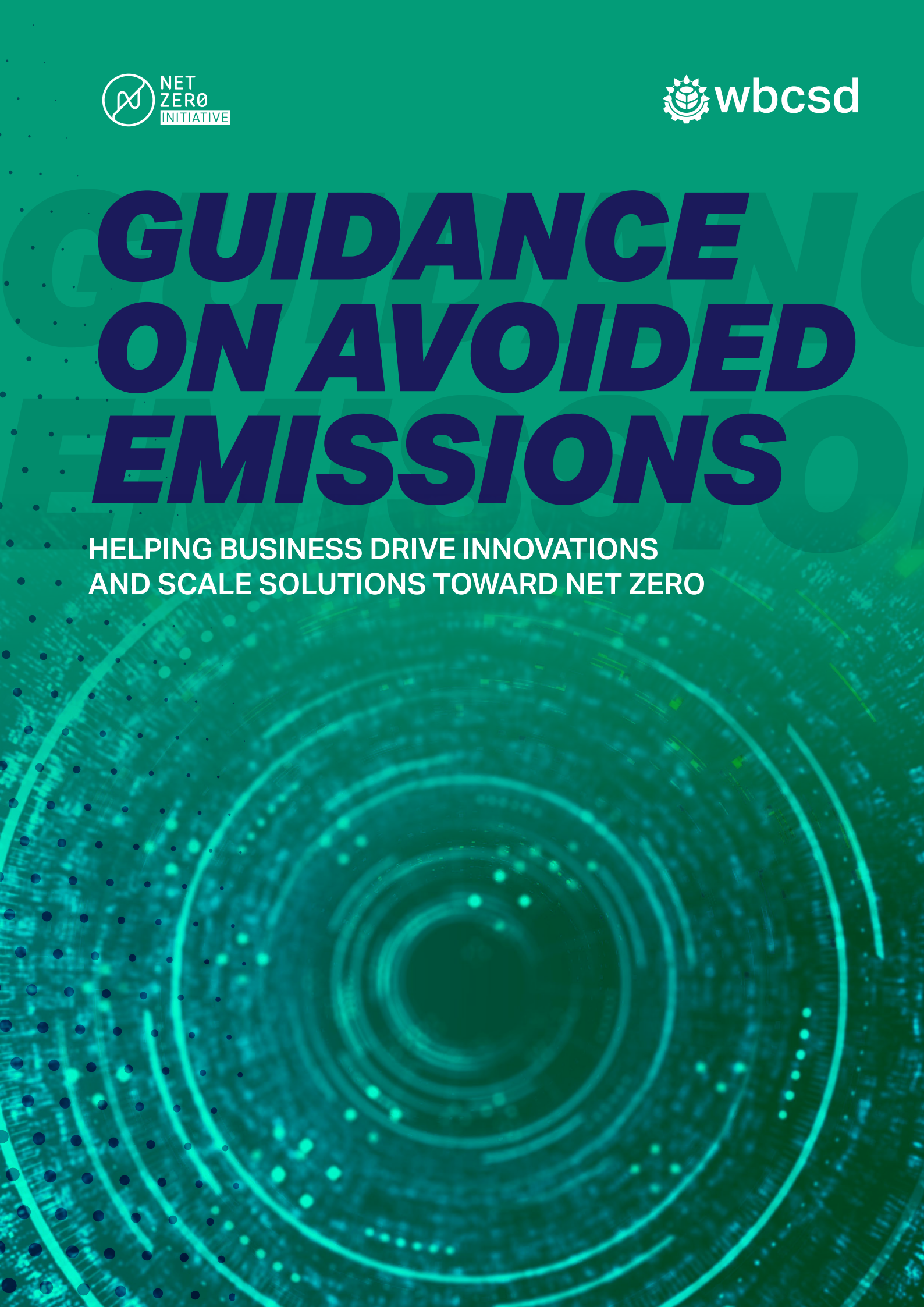
NET ZERO INITIATIVE

wbcsd

GUIDANCE ON AVOIDED EMISSIONS

HELPING BUSINESS DRIVE INNOVATIONS AND SCALE SOLUTIONS TOWARD NET ZERO



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Dominic Waughray

We are entering a new phase in the transition to Net Zero, which will focus not only on how companies can be held accountable for their emission reduction targets, but also on how all institutions can work together to define the most efficient ways to achieve our global Net Zero goal. To achieve this successfully, companies, but also regulators and financial actors, must have access to tools that reflect adequately how impactful their decisions are in limiting the global temperature rise.

To this end, governments and regulators have recently placed a strong emphasis on accountability and the need for companies to set Net Zero targets for their value chain emissions in order to contribute to the global Net Zero goal. This is reflected, for instance, in the European Commission's Corporate Reporting Sustainability Directive (CSRD), which now requires companies to disclose their 1.5°C aligned transition plans.

However, if companies are only encouraged to reduce inventory emissions, instead of also transforming into low- and zero-emissions solution providers, the shared goal of achieving global Net Zero by 2050 will fall out of reach. Edelman's 2023 Trust Barometer demonstrated that business is the only institution that is trusted globally. The main explanation behind this is that business is the only actor that focuses on solutions, and it is these solutions that will be critical in defining whether the world is able to effectively decarbonize effectively at a global scale.

This is why WBCSD and its member companies, in collaboration with the Net Zero Initiative (NZI) and an expert advisory group, set out to define a framework to consistently assess and account for the decarbonizing impact of companies' solutions – also known as avoided emissions.

This guidance represents a critical step in incorporating avoided emissions into globally recognized carbon accounting standards. This offers the potential for a profound policy unlock, as policy makers - and investors - will be able to leverage a recognized "high bar" accounting standard for avoided emissions. Public policy and investments can then be directed toward incentivizing companies to shift business models, such that more net-zero aligned products and services can be pulled into the market. This will be particularly important in those national and regional markets or key economic sectors where such investments are needed the most to drive significant emissions reductions. This will create a vital additional policy lever for governments and investors to use in driving corporate carbon decarbonization efforts as part of the global shift to Net Zero.

We invite all actors to use this guidance to encourage, incentivize, and support the deployment of the most impactful solutions in the markets most in need of them and to work together to build the path towards a Net Zero society.

Dominic Waughray

Executive Vice President,
World Business Council for Sustainable Development (WBCSD)

Foreword (2/3)

Jean-Marc Jancovici

Historically, companies have calculated their emissions – typically only accounting for their direct emissions – and then compensated for them by buying the same volume of CO_2 in carbon credits to claim carbon neutrality.

However, it is now apparent that the world will not reach Net Zero if companies continue to produce the same products and services and simply purchase carbon credits to offset their emissions.

Furthermore, offsetting will not help a company in instances where regulation changes, a carbon tax is introduced, consumer behavior changes, or capital becomes harder to obtain.

Put simply, transition risks cannot be avoided or mitigated by offsetting. The world will not achieve Net Zero by adding up individual companies' offset-based carbon neutrality claims.

Instead, a more appropriate method must be devised to assess the compatibility of economic activities with the global climate goal. This exact problem is at the root of the Net Zero Initiative (NZI), launched by Carbone 4 in 2018, with the technical help of a high-level expert group and the financial support of several large companies.

NZI determines that assessing a company's compatibility with a low-carbon economy requires the monitoring of three different indicators in parallel:

- **Induced emissions**, or a company's carbon footprint, which quantifies emissions occurring across the full value chain of the company (including Scope 3 emissions).
- **Avoided emissions**, which quantify the benefits – if any – that a company provides through its products and services compared to a reference scenario. Avoided emissions should be distinguished between those occurring in the value chain (through the sale of products and services) and those that are financed externally.
- **Carbon removals**, which represent the sinks linked to a company's activity and should be distinguished between those that occur within the value chain and those that occur outside (which includes carbon credits).

NZI has initiated a methodological process to enable companies to set targets on each of the three indicators, with a requirement that each target will have to be met separately.

The main purpose of avoided emissions – if they exist, because this is not the case for all solutions, or for all situations – is to reflect the ability of a product or service to contribute to a low-carbon economy. It is therefore crucial to have a robust and rigorous methodology for assessing them, as they are as important to strategic decision making as a financial balance sheet.

NZI is pleased to work together with WBSCD to promote the concept of avoided emissions because it is important that relevant standards guide pioneering companies (and later all companies) to move forward in the most appropriate way. Otherwise, we are just losing time, and losing time is not an option in a race against the clock, which is the case to reach global Net Zero.

Jean-Marc Jancovici

Partner,
Carbone 4

Foreword (3/3)

Dennis Pamlin

This report is a seminal step toward an expanded climate innovation agenda where companies are not only seen as sources of emissions, but also as solution providers. Solutions that deliver on societal needs in ways that allow the world to provide flourishing lives for everyone on the planet while delivering on a 1.5°C-compatible pathway. Today most policy makers, media, NGOs, academia and even companies themselves view companies only as sources of emissions. Climate leadership is often seen as a race to reduce emissions from companies and their value chains to zero. That companies try to reduce their emissions is absolutely critical, but in a world with rapid technological development, many unsustainable trends and accelerated innovation, is even more important to ask how companies can deliver solutions that improve human lives in a sustainable way. Avoided emissions help companies expand their climate agendas to where climate action also includes the capacity to sell products that deliver on human needs and a just transition while avoiding emissions in society, with market shares and profits as key drivers.

Avoided emissions assessments deliver several benefits, including:

- The possibility to link the need for avoided emissions in society to the rapidly growing sales of low-carbon solutions
- Support for companies that aspire to be purpose driven by providing a measurable indicator of net positive impacts on society
- Cultural change in support of a dynamic solution approach when staff receive verified data confirming they are contributing to a just transition by delivering sustainable solutions to human needs
- The unique opportunity to recruit top talent by showcasing a company as one where success means having more positive impacts on society
- Engaging with investors and other stakeholders as a solution provider with data about positive impacts on society and data that can be used to indicate intangible assets that so far have not been acknowledged.

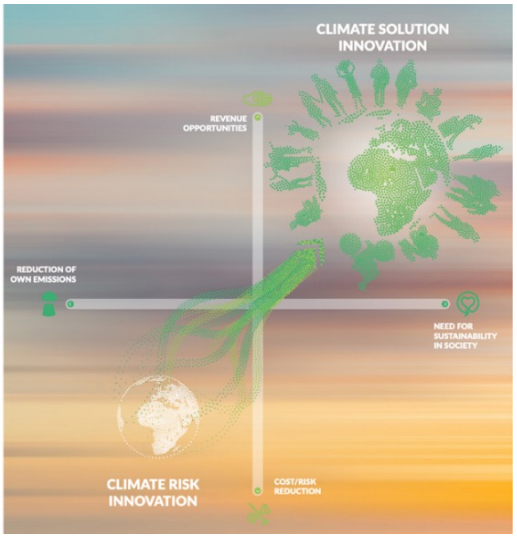
In addition, avoided emissions assessments can provide guidance for business model innovation and the accelerated deployment of low-carbon solutions when exploring future revenue streams.

It is important to stress that an expanded innovation agenda and the work done with avoided emissions in society is in addition to, not instead of, work focused on how companies can reduce their own emissions.

In fact, the need for companies – especially those with significant emissions – to reduce their own emissions and those from their value chain creates a market for solution providers. The benefits of an expanded innovation agenda are many, but all can – in different ways – help companies align their core business and capacity with the need to deliver on the vision of WBCSD, that 9+ billion people are living well, within planetary boundaries, by mid-century. In these difficult times, such a positive and human-centered vision is more important than ever.

This report provides state-of-the-art guidance on how companies with experience assessing and reporting their own emissions can begin assessing avoided emissions for current and future solutions. The fact that the guidance can also help investors and other stakeholders integrate avoided emissions assessments makes this report an even more important contribution to the growing movement toward an expanded climate innovation agenda that can increase the likelihood of a sustainable 1.5°C future.

Figure 1: Mission Innovation Matrix



Source: Mission Innovation

Dennis Pamlin

Executive Director, Mission Innovation's Net-Zero Compatible Innovations Initiative Senior Advisor, RISE Research Institutes of Sweden

Executive summary

WHY THIS GUIDANCE?

Prioritizing mitigation efforts at the company level is crucial but not enough

As clearly defined in Net Zero target-setting frameworks, companies need to rapidly reduce their direct and indirect greenhouse gas (GHG) emissions to meet the goals of the Paris Agreement. In addition, company contributions to global mitigation should not be limited to reducing their own and value chain GHG emissions but should also strive to accelerate global decarbonization efforts by delivering additional solutions that are compatible with a 1.5°C pathway and enabling others to reduce emissions as well. This broader contribution of companies to the global Net Zero target has been defined as Avoided Emissions.

Avoided emissions provide a broader picture to support the promotion and scaling of solutions needed to achieve Net Zero

Understanding the avoided emissions of solutions, in addition to their associated GHG emissions, can support long-term planning and decision-making by providing a broader picture of the climate impact of companies and the suitability of their visions and solutions in a Net Zero world. The aim is thus to inspire both companies and other relevant stakeholders (e.g., investors, regulators, customers) to focus on their roles in the promotion of system-wide changes (e.g., moving to more circular systems) required to fast- track the decarbonization of society through the transformation and scaling of low-carbon solutions and markets.

There is a need to raise the bar of current avoided emissions claims

As a result of the surge in sustainable solutions claims, there is a need to raise the bar of current avoided emissions claims to ensure their highest possible integrity and support businesses in making credible, consistent and transparent assessments and claims regarding avoided GHG emissions. Ultimately, this can enable them to include these assessments and claims in their decision-making processes to maximize their positive climate impact on society and support the acceleration of global decarbonization. and limit any misuse, including greenwashing.

HOW WAS THIS GUIDANCE DEVELOPED?

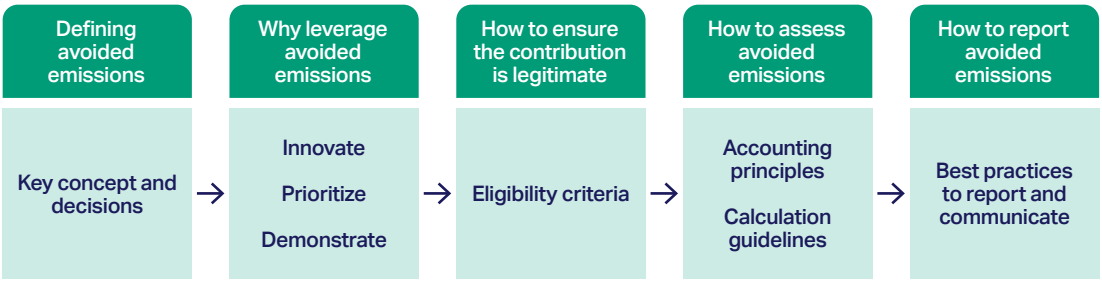
This guidance is a pioneering output from multi-stakeholder collaboration

This first version of the guidance results from an iterative stakeholder consultation process with multinational companies, supported by an advisory group of NGOs and academia. An independent stakeholder statement summarizing their views on the guidance can be found on page 50. As the development of consistent rules requires some trial and error, future additions or revisions may be necessary to account for the practical implementation of the guidance or to remain aligned with the evolution of the concept and landscape of carbon accounting and reporting.

This guidance is built on existing literature and seeks to bring harmonization and concrete guidance

This guidance does not seek to reinvent the wheel; instead, it is built from existing literature and aims to bring clarity and how-to guidance for companies to further contribute to global decarbonization. The guidance covers five areas that together will enable companies to make credible avoided emissions claims (Figure 2).

Figure 2: The five key areas to making credible avoided emissions claims covered in this guidance



WHAT IS THE SCOPE OF THIS GUIDANCE?

This guidance focuses solely on avoided emissions generated through the introduction of solutions (e.g., products, services, technology, projects). It builds on the principles of intervention accounting methods by identifying which sources and sinks are expected to be affected by a given intervention, either positively (e.g., avoided emissions) or negatively, both inside and outside of a company's GHG inventory boundaries.

Although an essential lever for the transition of society, this guidance does not yet address the spheres of advisory, influence, prescription, digital services, nudges or advertising in avoided emissions assessments. It also does not cover avoided emissions through the financing of climate mitigation projects.

Figure 3: A company's potential contributions to the decarbonization of the economy and focus of the WBCSD guidance

The two levers for reaching global Net Zero		**Global decrease in emissions**		**Global increase of carbon removals**
Actions at the scale of companies →		**Pillar A**: A company's emissions reduction (decarbonization)	**Pillar B**: A company's contribution to global decarbonization efforts	**Pillar C**: A company's contribution to carbon sinks development
Related to a company's value chain	A company's own operations	… through reduction of direct emissions (Scope 1)	-	… through direct removals (company's own removals)
	Upstream and downstream	… through reduction of indirect emissions (Scopes 2+3)	**Focus of the guidance** …through the introduction of solutions	… through indirect removals (removals inside the value chain)
Outside a company's value chain		-	… through financing and otherwise enabling climate mitigation projects	… through financing and otherwise enabling removal projects

Source: Adapted from the Net Zero Initiative

WHAT ARE THE KEY MESSAGES AND BEST PRACTICES?

Avoided emissions are defined as the "positive" impact on society when comparing the GHG impact of a solution to an alternative reference scenario where the solution would not be used.

Leveraging avoided emissions

Avoided emissions can provide essential insights for climate-aligned decision-making, innovation and purpose definition.

This guidance introduces three different perspectives – companies, investors and policy-makers – that together can leverage avoided emissions assessments as a means to mutually support each other and society in the path towards a just transition and 1.5°C-compatible society in 2050.

Specifically for companies, the guidance identifies three key ways in which companies can leverage avoided emissions to enhance their contribution and alignment to global Net Zero.

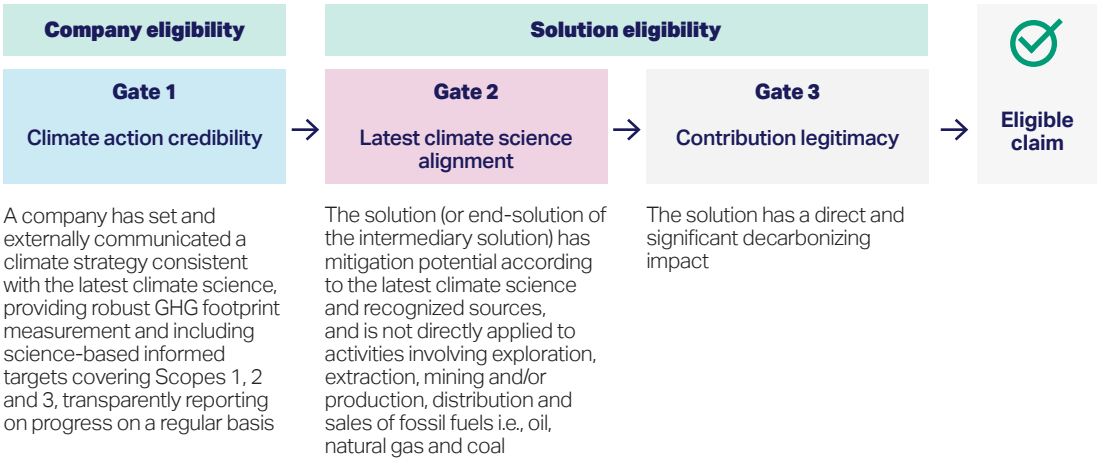
Figure 4: Three ways companies can use avoided emissions to align and contribute to global Net Zero

Innovation	Scaling	Accountability
Innovate and transform business models toward those with high decarbonizing impacts on society Use avoided emissions as one of the guiding metrics to support innovation processes, mindset shifts and ensure new solutions meet the needs of society	**Prioritize solutions and markets that require scaling to reach Net Zero globally** Use avoided emissions as a key decision-making metric to prioritize: • Markets with the highest avoided emissions impact • Portfolio choices with the highest avoided emissions potential • Stakeholders in the value chain that can help deliver avoided emissions • Contributions in areas with the most urgent emission reductions needs	**Demonstrate and track contributions and impacts at the societal level** Use avoided emissions to increase accountability by demonstrating companies' contributions to a 1.5°C-aligned society, going beyond climate risk related metrics

Ensuring the eligibility of avoided emissions claims

To limit any misuse of avoided emissions, companies should first ensure their company and solution are eligible to make an avoided emissions claim by following the three eligibility gates detailed in this guidance, covering.

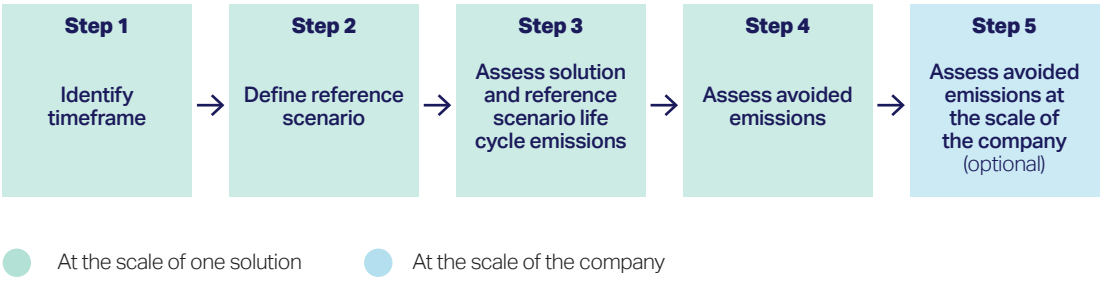
Figure 5: The three gates to ensure the eligibility of avoided emissions claims



Quantifying avoided emissions

When quantifying the avoided emissions impact of their solutions, companies should follow the step-by-step approach below and ensure that the calculations rules detailed in the guidance are followed to achieve a robust and consistent approach.

Figure 6: The five steps to ensuring a consistent approach to assessing avoided emissions



Communicating and reporting avoided emissions

Finally, when communicating avoided emissions in line with this guidance, companies shall refer to the nine reporting principles below to ensure full transparency of their avoided emissions claims:

1. **Avoided emissions shall always be reported separately** from:
    - GHG inventory footprints
    - Carbon sinks
    - Financial contributions to transition (abatement, avoidance or removals) outside the value chain.
2. **Avoided emissions shall not be used to claim a company's carbon neutrality**, net-zero emissions or any other claims implying a company's absence of impact on the climate.
3. When communicating and reporting at a solution level, companies shall **provide a description and the life cycle GHG emissions of the solution(s) and reference scenario(s)** on which the avoided emissions are based.
4. **Companies shall specify whether they used the forward-looking or year-on-year approach to quantify avoided emissions**.
5. Any reported and communicated avoided emissions **shall comply with the three eligibility criteria gates (Figure 5). Evidence of compliance with each gate (e.g., macro mitigation pathway and reference used for Gate 2) should be publicly available in the context of external claims.**
6. **Avoided emissions shall not be communicated externally without specifying which percentage of total revenue** the solutions generating those avoided emissions represent. This should be reported at the level of the entity claiming avoided emissions.
7. **Companies shall mention whether a third party has verified the avoided emissions impact**.
8. Any **identified negative side-effects** of the solution(s) in terms of environmental trade-offs and sustainability goals beyond GHG impact **shall** be communicated publicly, with the **company providing a description of the actions undertaken to mitigate those effects**.
9. Companies **shall mention if they have identified potential rebound effects** and if they have been included in the assessment or not, and provide a description of their nature and the actions undertaken to mitigate them.

Figure 7: A suggestion of how companies could communicate avoided emissions in line with the above mentioned guidelines

Description of the contribution

Solution and reference scenario description and life cycle GHG emissions (when communicating at a solution level):

Context and overview of the solutions in scope and reference scenario selection approach (when communicating at an entity level):

Acknowledgements

- O We comply with the three eligibility gates
- O We report avoided emissions separately from our GHG inventory
- O We don't claim climate neutrality through the use of avoided emissions
- O We assessed potential negative side-effects of our solution(s) in terms of environmental trade-offs and sustainability goals beyond GHG impact
- O We assessed potential rebound effects of our solution(s)

Impact

GHG emissions avoided:

Approach:

- O Year-on-year (20XX)
- O Forward-looking (20XX – 20XX)

% of total revenue (*at the entity level only*):

Limitations

Description of potential negative side and rebounds effects, and description of actions to mitigate these:

Eligibility Assessment

Gate 1 (Climate Action Credibility):

Gate 2 (Climate Science Alignment):

Gate 3 (Contribution Legitimacy):

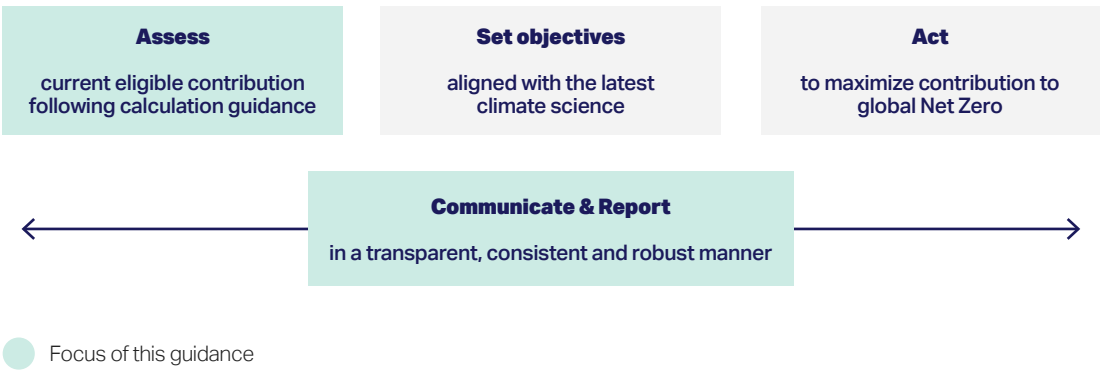
Our approach to defining and calculating Avoided Emissions has been independently verified:

- O Yes
- O No

HOW TO USE THIS GUIDANCE

We suggest the following steps for companies wishing to leverage avoided emissions as a key metric to support their contribution strategy to global Net Zero efforts.

Figure 8: The steps companies should follow to use avoided emissions as a metric to measure global Net Zero contributions



1 Introduction

To limit the rise of the global temperature to no more than 1.5°C above pre-industrial levels, societies must drastically cut emissions and protect and develop carbon sinks to achieve a state of Net Zero Greenhouse Gas (GHG) emissions by the middle of the century.

Indeed, limiting warming to 1.5°C in a sustainable way is essential to avoiding the worst impacts of climate change and addressing global challenges like biodiversity and poverty.

This could reduce the number of people exposed to climate change risks and the threat of irreversible tipping points leading to the destruction of natural ecosystems and self-accelerating global heating. According to the Intergovernmental Panel on Climate Change (IPCC), many changes directly connected to global warming are set to grow exponentially and every fraction of a degree makes a difference.

At a company scale, climate action must therefore be dedicated to transforming business models, not only to adapt to a changing and decarbonizing world, but also to become vectors for this change.

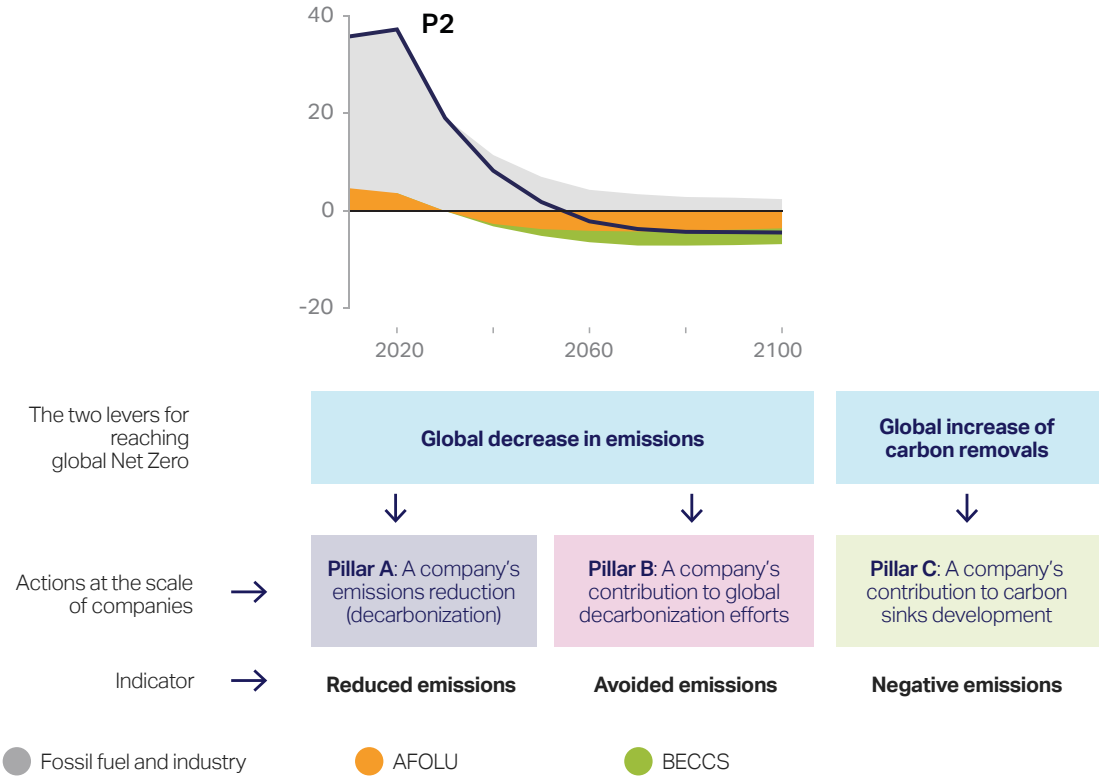
With this in mind, a key consideration is then how companies can become solution providers for a sustainable net-zero future and assess their alignment with this development path. If we consider the global nature of this goal, company contributions to global mitigation should not be limited to the reduction of their **own direct and indirect** GHG emissions in line with the Paris Agreement, but they should also strive to accelerate global decarbonization efforts **by delivering solutions that are compatible with a 1.5°C pathway and enable emission reductions in society while delivering on other global sustainability goals**. This guidance aims to expand the traditional GHG inventory assessment by bringing another lens – called **avoided emissions** – to understanding a company's complete contribution to global Net Zero efforts. This guidance also aims to establish proper safeguards to avoid any misuse of this assessment, including greenwashing.

Note
Although the concept of avoided emissions has gained traction in recent years, the underlying ambition to measure impact rather than inventory emissions was initially developed at the turn of the 21st century with the publication of several future emissions accounting frameworks. This forward-looking approach evolved over the first decade of the century, to what is now known as avoided emissions, with the publication of several key guidelines. WBCSD's Addressing the Avoided Emissions Challenge (2013) aimed to define the key parameters required for avoided emissions calculations, while WRI's Estimating and Reporting the Comparative Emissions Impact of Products (2019) provided companies with a neutral framework upon which to base their assessments. The ambition of this new guidance is to build on the foundational work and continuous collaboration of these two organizations to take the guidelines a step further and ensure that the current traction gained by the concept is met with robust and credible requirements that companies can use to leverage avoided emissions assessments.

The graph displayed on Figure 9 demonstrates how the three "pillars" of a company's contribution align to global Net Zero scenarios:

- Pillar A relates to organizational GHG emissions reductions.
- Pillar B relates to a company's ability to accelerate the decarbonization of society, especially through the introduction of low-carbon solutions that phase out more carbon-intensive solutions.
- Pillar C relates to a company's contribution to the removal of carbon emissions from the atmosphere.

Figure 9: Introduction to the three pillars of a company's contribution to global Net Zero scenarios



Source: IPCC 1.5°C Report and Net Zero Initiative. Scenario P2 is illustrative.

Note
Since its establishment, experts have aimed to coin "avoided emissions" using a variety of alternative terms, namely "Handprint," "Enablement," or "Scope 4." This guidance believes "Scope 4" to be misleading, as it places avoided emissions at the same level as companies' GHG inventory emissions (see Section 2). While "Handprint" and "Enablement" do create the necessary distinction, this guidance strongly recommends the use of "Avoided Emissions" to ensure consistency and avoid any miscommunications on the nature of this assessment.

Corporate climate action has long been structured around the notion of corporate GHG inventories (see Pillar A in Figure 9), which quantify an organization's direct and indirect GHG emissions across the value chain, thanks to accounting tools and frameworks such as the GHG Protocol. Measuring a company's GHG inventory, setting an emissions reduction target consistent with 1.5°C carbon budgets and taking action to achieve it **is, and should remain, a primary focus**.

However, an increasing number of companies and organizations are looking to **go beyond the act of reducing emissions ("doing less harm") by performing complementary actions ("doing more good") focused on providing climate solutions**. Indeed, an organization's GHG inventory emissions cannot, on their own, assess the full role of a company toward addressing climate change.

Although companies can detect emission reductions related to the use of their solutions over time through the monitoring of GHG inventory emissions, they cannot assess whether these solutions have resulted in increased or decreased emissions in society. Quantifying a company's decarbonization impact through its solutions while also keeping track of any adverse effects associated with its portfolio is thus essential to establishing a more complete overview of its contributions to global decarbonization (see Pillar B in Figure 9). This enables companies to better understand their broader climate impact and develop 1.5°C-aligned strategies while also accurately communicating their efforts. For example, the avoided emissions metrics can be particularly insightful to assess the positive impact of circular economy solutions at the society level.

"Avoided Emissions" is the term experts have coined to quantify the decarbonization impact of a given solution. Avoided emissions can thus serve as a way of putting the broader societal climate gains that are not fully reflected in its GHG emissions inventory on a company's radar (see Section 2 for a more detailed definition of avoided emissions).

Though quantifying avoided emissions enables companies to focus on their own decarbonization as well as the role they play in the decarbonization of society, estimating avoided emissions raises new methodological challenges. In contrast to a company's inventory emissions, which are physically measurable quantities of GHGs being released (or removed) from the atmosphere, avoided emissions are the result of a comparative assessment between a scenario including the use of a given solution, and a hypothetical scenario where the solution is not present. This document seeks to guide readers on how to address these methodological challenges in a robust and consistent manner.

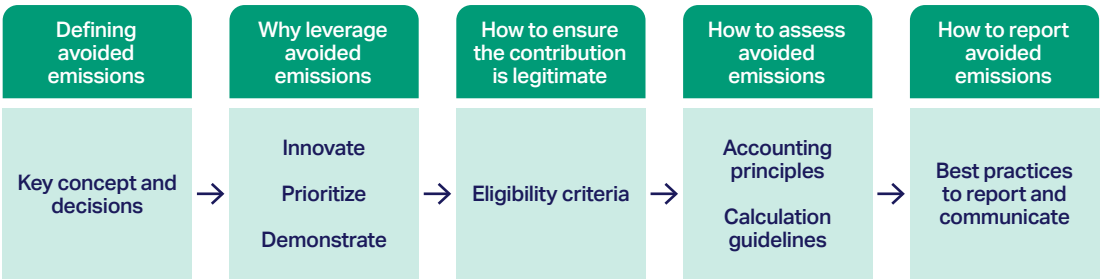
1.1 PURPOSE AND INTENT

Building on existing reports, guidance documents and frameworks on avoided GHG emissions (see Bibliography), this document has been developed to **support businesses in making credible, consistent and transparent assessments and claims regarding avoided GHG emissions**. Ultimately, this can enable them to include these assessments and claims in their decision-making processes to maximize their positive climate impact on society and support the acceleration of global decarbonization.

Specifically, this document focuses on providing initial guidance on how to:

1. **Understand avoided emissions:** by setting the scene and introducing all relevant terms to create a global understanding and awareness of what avoided emissions intend to capture.
2. **Leverage avoided emissions:** by outlining how companies can use avoided emissions in decision-making and innovation processes to accelerate global Net Zero efforts by shifting to solution portfolios with high decarbonization impacts and prioritizing markets with higher decarbonization needs and opportunities.
3. **Validate claim eligibility:** by setting a **common approach with key principles and criteria** for companies to determine whether their assessments and claims are sound in the context of their overall portfolio.
4. **Assess avoided emissions:** by developing **guidance** for companies to assess their avoided emissions and define reference scenarios in a robust and consistent manner.
5. **Communicate and report in the context of contributing to global Net Zero efforts:** by proposing the **use of avoided emissions** as a legitimate way to demonstrate a company's contribution to global Net Zero efforts while also considering any adverse effects.

Figure 10: The five key areas to making credible avoided emissions claims covered in this guidance



1.2 CORE PRINCIPLES

The guidance follows six core decision-making principles defined by WBCSD and NZI:

1. **Ensure company strategies are aligned with the latest climate science[1] and global climate goals** (i.e., the Paris Agreement or an updated international agreement on climate change).

2. **Prioritize the reduction of GHG emissions across the value chain**. Companies shall not make avoided emissions claims without working on reducing their Scope 1, 2 and 3 emissions in line with the latest climate science.[1] Companies shall address Scope 1, 2 and 3 emissions, even if they consider themselves to be climate solution providers.

3. **Separate reporting of inventory and avoided emissions**. Companies shall always separate Scope 1, 2 and 3 GHG emissions reporting from avoided emissions in their external company reporting and shall not use avoided emissions to offset GHG inventory emissions. As such, avoided emissions should also be kept separate from offsetting claims and carbon credits.

4. **Emphasize the long-term viability of solutions**. Decisions made in the development of this guidance will support the development or deployment of 1.5ºC-compatible solutions that do not lock-in[2] GHG-emission-intensive assets or are inconsistent with the global Net Zero ambition and a 1.5ºC pathway.

5. **Drive quality GHG emissions reporting** by building on the GHG Protocol accountancy principles: relevance, accuracy, completeness, consistency, transparency, conservativeness and representativeness (please refer to Section 13).

6. **Deliver actionable recommendations**. We do not seek to reinvent the wheel; rather, this guidance is built from existing literature to bring clarity and help companies make informed and easily communicated decisions that allow them to refine their business strategies to further contribute to global decarbonization.

1.3 AUDIENCE

This guidance can support four main types of stakeholders in their joint efforts toward global Net Zero:

- **Businesses** wishing to prioritize markets and solutions with high decarbonizing impact to maximize global Net Zero contribution, as well as reporting on their solutions' avoided emissions. It can also be used by industry associations as a basis for developing sector-specific guidance.

- **Investors and other financial actors** looking to use the avoided emissions metrics to guide their investment strategies to fund and scale decarbonizing solutions across different regions.

- **Policymakers** looking to develop complementary mechanisms driven by avoided emissions assessments to further support and incentivize the development and scaling of decarbonizing solutions in key markets.

- **Customers, non-financial rating agencies, NGOs, academia or any other society stakeholders** looking to learn about best practices for assessing and disclosing avoided GHG emissions.

1.4 SCOPE OF THE GUIDANCE

This guidance focuses solely on **avoided emissions generated through the introduction of solutions (e.g., products, services, technology, projects)**. Although essential levers for the transition of society, this version does not yet address the sphere of advisory, influence, prescription, digital services, nudges or advertising in avoided emissions assessments. Guidelines on how to account for avoided emissions associated with these will be explored in future revisions of the guidance.

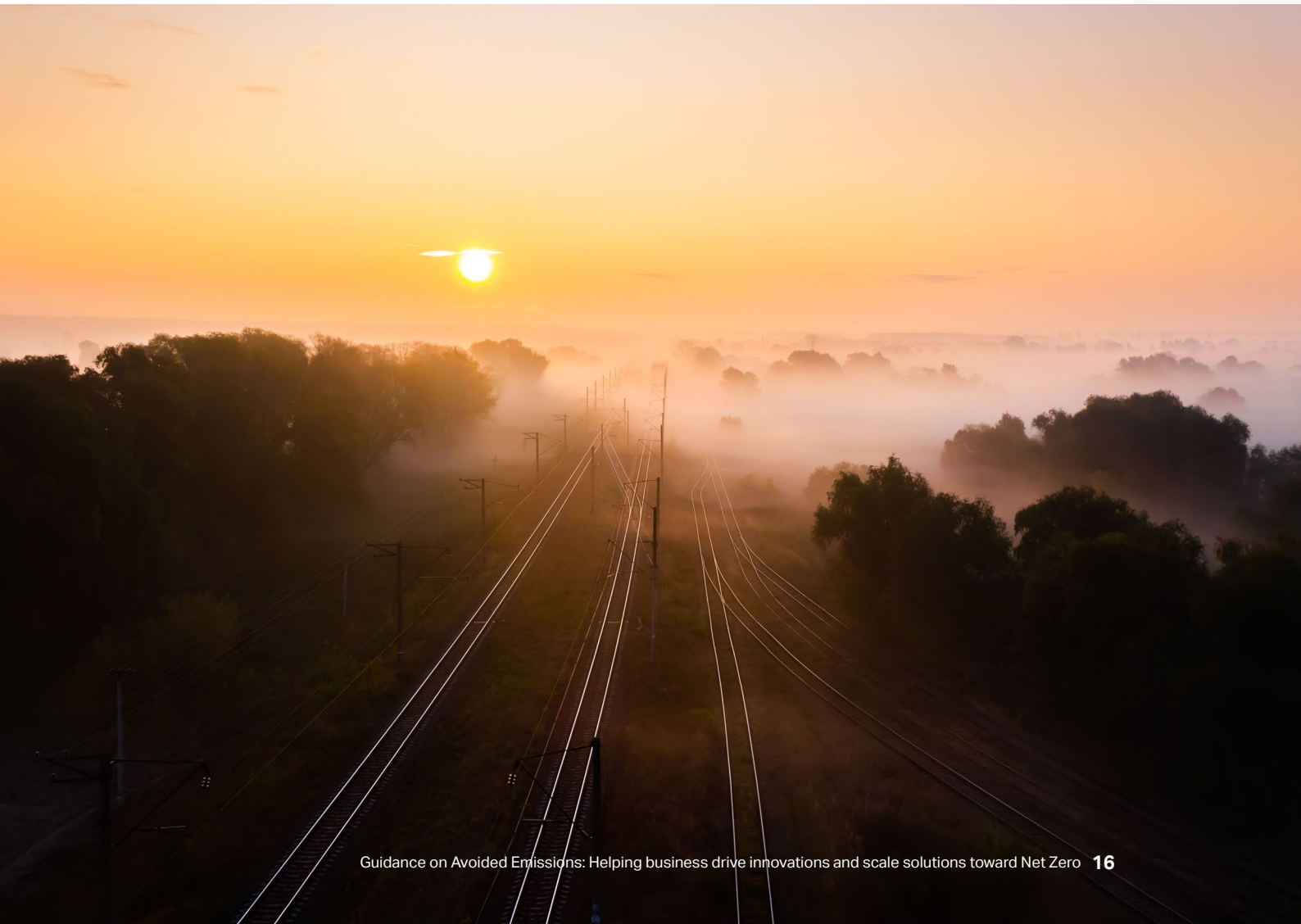
The guidance also does not cover avoided emissions through the financing of climate mitigation projects, and is thus not intended to create or expand a voluntary crediting mechanism nor a crediting mechanism under Article 6 of the Paris Agreement.

While the guidance focuses on GHG emissions, the reasoning and principles laid out in the document can be replicated in the future for additional environmental indicators.

Figure 11: A company's potential contributions to the decarbonization of the economy and focus of the WBCSD & NZI guidance

The two levers for reaching global Net Zero		**Global decrease in emissions**		**Global increase of carbon removals**
Actions at the scale of companies →		**Pillar A**: A company's emissions reduction (decarbonization)	**Pillar B**: A company's contribution to global decarbonization efforts	**Pillar C**: A company's contribution to carbon sinks development
Related to a company's value chain	A company's own operations	… through reduction of direct emissions (Scope 1)	-	… through direct removals (company's own removals)
	Upstream and downstream	… through reduction of indirect emissions (Scopes 2+3)	**Focus of the guidance** …through the introduction of solutions	… through indirect removals (removals inside the value chain)
Outside a company's value chain		-	… through financing and otherwise enabling climate mitigation projects	… through financing and otherwise enabling removal projects

Source: Adapted from the Net Zero Initiative



② Understanding avoided emissions

This section gives an overview of the key concepts associated with avoided emissions, as well as key differences between avoided emissions and other types of emissions accounting, to provide a harmonized understanding of what is defined by avoided emissions.

Avoided emissions refer to the "positive" impact on society when comparing the GHG impact of a solution to an alternative reference scenario (see Section 4 for the detailed calculation).[3] **An avoided emission is thus the difference between GHG emissions that occur or will occur (the "solution") and GHG emissions that would have occurred without the solution (that of the reference scenario)**.[4] GHG emissions of both the solution and the reference shall be assessed throughout their entire life cycle.

Unlike GHG inventory assessments, which focus on the variation of a company's inventory emissions between two points over time, avoided emissions focus on the difference in emissions between two scenarios – one associated with the solution (the one that will be taking place), and one associated with the reference scenario, calculated for a specified time interval.

Thus, while corporate GHG inventory assessments belong to the **inventory accounting** category, avoided emissions belong primarily to the **intervention accounting** category.

While corporate inventory accounting is the sum of emissions associated with a company's value chain, avoided emissions are emission reductions that occur outside of a product's life cycle or value chain, mainly as a result of the use of that product. Due to their forward-looking nature, avoided emissions are the result of a comparative exercise between emissions associated with an identified reference scenario and emissions associated with the solution (the intervention).

Figure 12: Definition of avoided emissions

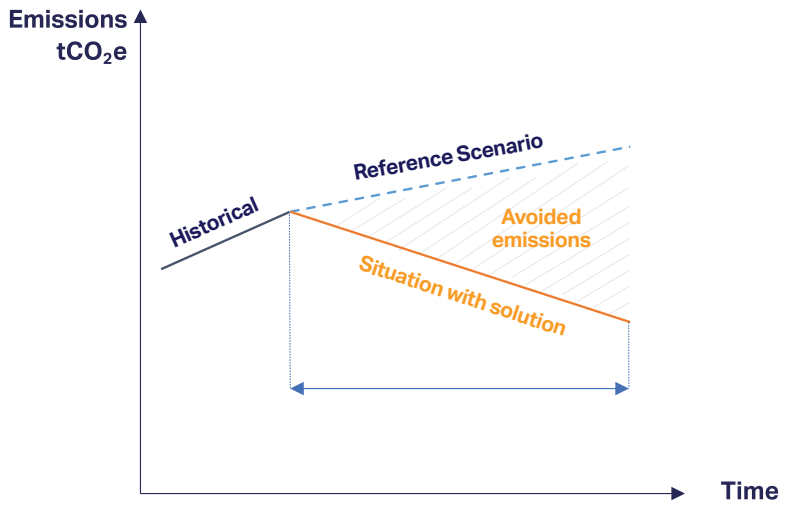
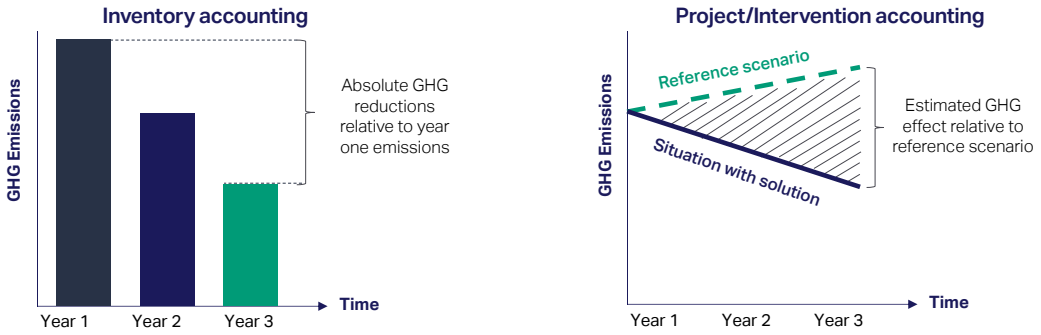


Table 1: GHG inventory vs. intervention accounting

Category	Inventory accounting	Intervention accounting
Scope	GHG emissions from a company's activities	GHG emissions in society
Principle	An assessment of annual absolute emissions from a company and its value chain	An assessment of the GHG impact of a solution provided by a company, compared to what would have occurred if the solution wasn't used (e.g., standard market solution)
Time	An assessment is made between two chronological points in time	An assessment is also made between two points in time, but made by comparing the solution's use to a hypothetical situation within the same time period
Reference	GHG emissions reductions are quantified against actual absolute emissions in a historical base year	Avoided emissions are quantified against a reference scenario
Certainty	The reference (historical base year) is real and accurate[5]	The reference scenario is model-based, fictional and thus not verifiable per se
Reality	Emissions reductions compare the variation of a company's reported emissions over time	Avoided emissions compare the climate impact of a solution (what has happened or is expected to happen) and a reference scenario (what would have occurred without the solution)

Figure 13: The difference between GHG inventory and intervention accounting



Please note that this is an example diagram, as both reference scenario and solution emissions may increase or decrease over time.

Source: GHG Protocol

Note

What is the difference between a Scope 3 reduction and avoided emissions?

There is often confusion between accounting for Scope 3 emissions and avoided emissions. However, these two notions are very different:

- **Scope 3 emissions accounting** takes a company's point of view. In particular, emissions reductions of products are seen as changes in several Scope 3 categories, which together reflect the life cycle emission of sold products. Further, Scope 3 emissions are only compared to the same company's Scope 3 emissions from previous years, whereas avoided emissions are compared to the most likely alternative that would have occurred without the solution, which could be a product from another company or a completely different solution altogether.
- **Avoided emissions accounting** is built from a societal context and the use of the solutions' point of view, where two situations are compared: one with the solution sold by the company, the other with the most likely scenario that would have occurred without the solution. Avoided emissions give an estimated emissions reduction in society due to the use of the solution but outside the solution provider's Scope 1-3 emissions.

GHG inventory accounting and avoided emissions accounting are complementary indicators that monitor different impacts (see Figure 11), and hence need to be managed in parallel:

- **Pursuing a reduction of Scope 3 emissions** will incentivize a company's decarbonization of its portfolio when compared to previous years. For instance, if a company that sells gas boilers makes these products more efficient, this portfolio improvement will result in a reduction of their Scope 3 emissions.
- **Pursuing the maximization of avoided emissions** will incentivize a company to accelerate its contribution to the decarbonization of society through the addition of an increasing number of decarbonizing solutions in its portfolio and prioritizing markets that need to be decarbonized most. For instance, a company that sells heating solutions will seek to maximize its avoided emissions by focusing on selling heat pumps instead of gas boilers and focusing their sales on customers living in homes equipped with carbon-intensive heating solutions.

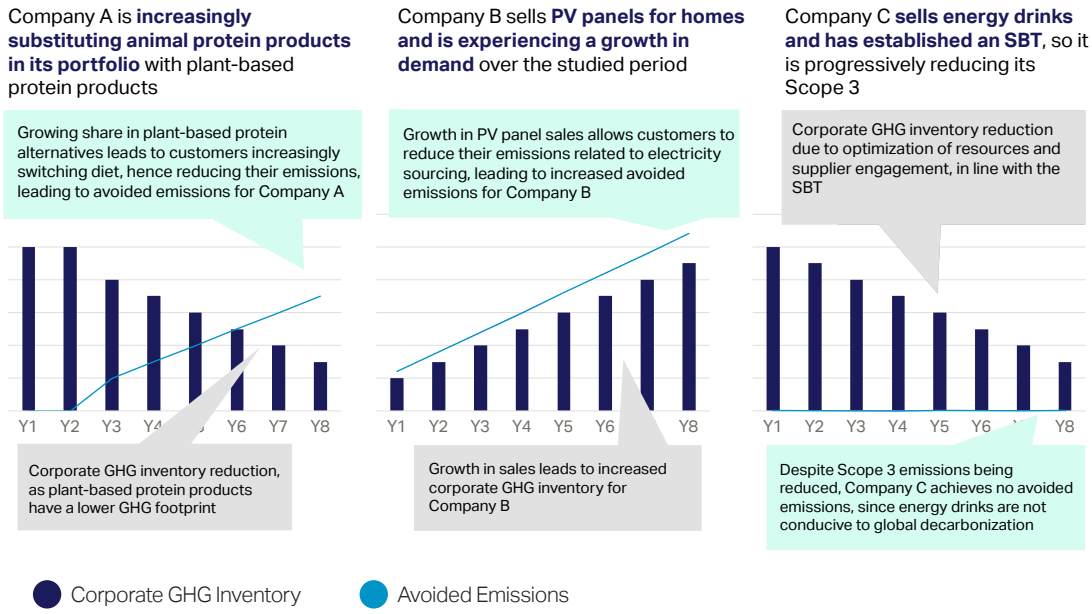
Below are three use cases showing the distinction between GHG inventory and avoided emissions accounting.

Use case 1: Company A is increasingly substituting animal protein products in its portfolio for plant-based protein products. In this case, Company A's corporate GHG inventory will reduce emissions associated with the production of animal protein, which are higher than their plant-based counterparts. In parallel, Company A's contribution to global decarbonization efforts will increase, as they will allow for a greater number of consumers to buy plant-based protein products, resulting in incremental avoided emissions.

Use case 2: Company B sells PV panels for homes, which have experienced a growth in demand over the period studied. Assuming no measures are put in place to reduce manufacturing emissions,[6] Company B's inventory emissions will increase as sales grow. In contrast, the more PV panels it sells, the more Company B contributes to the shift toward renewables in the energy sector, leading to increased avoided emissions.

Use case 3: Company C sells energy drinks. It has established a science-based target and has started reducing its Scope 3 emissions. In this case, although Company C is reducing its inventory emissions, it does not trigger any avoided emissions, since energy drinks are not conducive to global decarbonization. Monitoring Scope 3 reduction is not likely to promote any change to the company's business model or stimulate a larger impact on the global decarbonization effort.

Figure 14: Three use cases showing the difference between Scope 3 reductions and avoided emissions



In summary**, the decarbonization effect induced by the introduction of solutions is not fully grasped by traditional inventory accounting.**

Note
Since avoided emissions focus on a different way of delivering solutions in society, they are dependent on context. Avoided emissions are, therefore, always a function of the solution used and the context (i.e., the reference scenario) in which it is sold (see Section 4 for more details).

To tackle the current gap in identifying opportunities, all corporate contributions toward achieving global Net Zero should be identified and quantified in parallel with a company's GHG inventory assessment. While it is important to consider both added and avoided emissions to establish a comprehensive understanding of the impact of a solution or a company's portfolio (see Section 7 for more information on the limitations of the guidance), this document focuses primarily on the identification of solutions that could help the transformation.

Quantifying these positive contributions is the first step toward ensuring companies manage them dynamically and efficiently to maximize their positive impact and be able to externally communicate these impacts as needed.

③ Leveraging avoided emissions

The reasons for assessing avoided emissions are multiple and vary depending on the actor aiming to make use of the avoided emissions metric. This section introduces three different perspectives – companies, investors and policy-makers – that together can leverage avoided emissions assessments as a means to mutually support each other and society in the path towards a just transition and 1.5°C-compatible society in 2050.

3.1 FROM A COMPANY PERSPECTIVE

While avoided emissions can be considered an **Accountability** tool to demonstrate a company's positive contribution to the Net Zero goal via its solutions, avoided emissions can also be used as a powerful tool to **Innovate** (i.e., identifying opportunities to innovate while meeting society's needs) and **Scale** solutions in markets with the most strategic decarbonizing potential.

By enabling the quantification of climate-related benefits, avoided emissions assessments can **provide leading companies (i.e., first movers) with the necessary platform to develop and scale the solutions in markets with the highest decarbonizing potential, resulting in a new type of climate leadership**.

Figure 15: Three man ways for companies to leverage avoided emissions

Innovation	Scaling	Accountability
Innovate and transform business models toward those with high decarbonizing impacts on society Use avoided emissions as one of the guiding metrics to support innovation processes, mindset shifts and ensure new solutions meet the needs of society	**Prioritize solutions and markets that require scaling to reach Net Zero globally** Use avoided emissions as a key decision-making metric to prioritize: • Markets with the highest avoided emissions impact • Portfolio choices with the highest avoided emissions potential • Stakeholders in the value chain that can help deliver avoided emissions • Contributions in areas with the most urgent emission reductions needs	**Demonstrate and track contributions and impacts at the societal level** Use avoided emissions to increase accountability by demonstrating companies' contributions to a 1.5°C-aligned society, going beyond climate risk related metrics

3.1.1 Innovation

Transform business models to deliver innovative climate change solutions.

One of the benefits of an avoided emissions assessment is to promote cultural and strategic shifts within companies, from a focus on climate risk to climate solution innovation (see Figure 16). Many company climate action plans are approached from a risk perspective, which consists of reducing their own emissions and mitigating the risks associated with a changing climate.

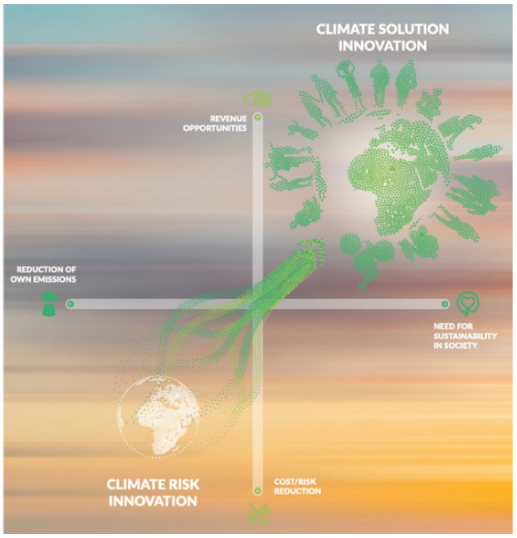
While this approach is indeed essential to achieving our climate targets and should remain the priority, it is insufficient to identify the wealth of innovative opportunities delivering on human needs that could become a core element of a company's climate strategy.

Since avoided emissions assessments focus on identifying the best way to deliver solutions to society in the most relevant markets, they can become a core ingredient of business model innovations.

The number of companies exploring a purpose-driven agenda is rapidly growing, but few still link this to a sustainability strategy. Increased awareness of solutions via avoided emissions assessments can help establish this link, providing a stronger alignment to a company's vision and mission by shifting the focus from simply reducing the current impact to zero, to understanding how to deliver what the world needs.

It is important to recognize that companies do not necessarily need to develop new, breakthrough technologies to innovate and deliver solutions that can reduce emissions in society.

Figure 16: Mission Innovation Matrix



3.1.2 Scaling

Focus on scaling solutions and prioritizing markets with the greatest decarbonization potential to accelerate the transition to global Net Zero.

Avoided emissions can also be used as a key metric to support decision-making within a company to prioritize:

- Markets with the highest avoided emissions impact for these solutions
- Portfolio choices with the highest avoided emissions potential
- Stakeholders in the value chain that can help deliver avoided emissions
- Contributions in areas with the most urgent emission reduction needs

Exploring current and future solutions with avoided emissions assessments can serve to maximize the decarbonization impact of an activity, not only **by shifting business models and portfolios**, but also by **prioritizing and scaling the usage of solutions in markets with the greatest decarbonization potential**.

For instance, to maximize its avoided emissions, a heat pump manufacturer can benefit from targeting customers equipped with the most carbon-intensive heating solutions to displace as much fossil energy as possible. A shared car service provider can target cities where the use of cars for short trips is prevalent rather than cities with extensive use of good quality public transportation. **Altogether, avoided emissions can be the right incentive for companies to focus on the right climate solutions and the right markets.**

3.1.3 Accountability

Demonstrate and track contribution and impact at the societal level.

Ultimately, companies can demonstrate their decarbonization focus through the reporting and communication of their avoided emissions. Although more passive than the "Innovation" and "Scaling" approaches, which both use avoided emissions as a lever for transformation, avoided emissions can increase companies' accountability by demonstrating their contribution to a 1.5°C-aligned society, going beyond climate risk-related metrics and as result, proving to their investors, customers and employees that they are aware of their role in supporting the provision of the right climate solutions for society. Acknowledging that companies may also be associated with "added emissions," Section 6 puts forward guidelines on how avoided emissions should be reported in relation to a company's overall sales.

3.2 FROM AN INVESTOR PERSPECTIVE

Investors and financial actors wishing to move beyond investees' GHG emissions and associated risks can leverage avoided emissions to understand and quantify the net-zero aligned opportunities associated with current and future investment decisions.

Despite a growing focus of institutional investors on climate-related factors, the lens through which these factors are currently assessed is primarily based on companies' GHG inventories – via absolute and intensity carbon metrics – and their exposure to physical and transitional risks. While it is of course essential for investors to take these concepts into consideration when building their portfolios, this approach fails to capture the increased market opportunities available to entities that provide solutions aligned to a 1.5°C pathway that may arise from increased legislation and customer action.

Avoided emissions assessments can provide investors with this additional opportunity-oriented lens that can help them identify, assess and ultimately invest in companies that are future-proofing their businesses by leading the green transition and driving decarbonization with their solutions.

In this sense, the benefits of leveraging avoided emissions are two-fold, as companies could profit not just from the identification of 1.5ºC-aligned opportunities, but also from financial actors using these very metrics to inform their investment decisions. This would, in turn, provide companies with the necessary access to capital to enable an accelerated scale-up of 1.5ºC-aligned solutions.

Financial actors may therefore use this guidance and explore its applicability in the context of portfolio analysis to further refine the climate-related value of their investment decisions. In line with Section 6, when evaluating individual companies, investors should prioritize companies with the best overall profile, making sure to interpret avoided emissions in relation to the overall company portfolio while including any adverse impacts.

3.3 FROM A POLICY PERSPECTIVE

Avoided emissions can also be a powerful tool to guide governmental action directed at accelerating decarbonization efforts. This metric can be particularly interesting when it comes to making our societies more resource efficient, as it provides the "full picture" of the impact of a solution in a given market.

Governing bodies can leverage avoided emissions at two complementary levels:

1. Prioritizing government action, i.e., to support the identification of the most relevant decarbonizing solutions to be deployed in a given area or, alternatively, the areas to be prioritized for selected decarbonizing solutions or actions.

2. Supporting policy mechanisms (e.g., incentivization mechanism, regulation) to speed decarbonization efforts from businesses as well as through innovation. This is particularly relevant in the context of regulations aimed at incentivizing the most efficient solutions – avoided emissions-based regulations could incorporate a dynamic element to the regulations by basing these on the evolving market averages or identified best-in-class solutions (e.g., the most energy efficient solution on a 3-year period becoming the energy efficiency threshold for that type of solution the next 3-year period).

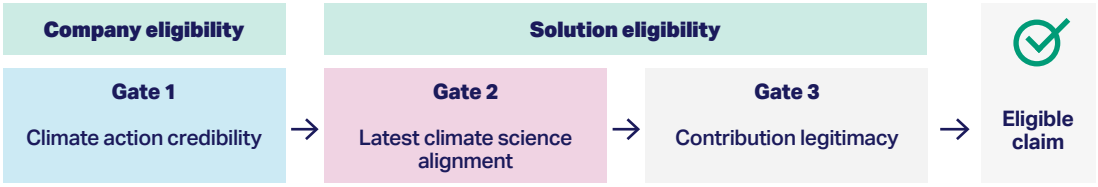
While not yet widely used by public stakeholders, this guidance can serve as a reference to inform their actions and align with the best practices to assess avoided emissions. We hope this guidance lays the foundations for additional work to support governing bodies in accelerating decarbonization efforts.

④ Validating claim eligibility

To ensure the highest possible integrity of avoided emissions claims and avoid any misuse, this section introduces three eligibility criteria that companies should meet ahead of undergoing avoided emissions calculations to determine the legitimacy of their claim.

The gates have been structured in a way that assess the eligibility of both company and solution, with one company-level gate followed by two solution-level gates, as presented in the figure below.

Figure 17: The three gates to ensure the eligibility of avoided emissions claims



4.1 GATE 1: CLIMATE ACTION CREDIBILITY

The company has set and externally communicated a climate strategy consistent with the latest climate science,[7] providing robust GHG footprint measurement and including science-based informed targets covering Scopes 1, 2 and 3, transparently reporting on progress on a regular basis.

The climate strategy should include intermediary and long-term targets, as well as performance metrics demonstrating progress toward the established targets.

In practice:

- Companies should externally report their science-aligned climate ambition and targets, as well as the actions they are taking to achieve them (e.g., a climate transition plan).
- Setting targets following the latest Science Based Targets initiative (SBTi) recommendations is considered best practice and is sufficient to meet this criterion, provided a company also reports on progress toward those targets. Companies can use other ways to demonstrate the existence of a climate strategy and its alignment to the latest climate science (e.g., net-zero targets broken down into quantifiable milestones and reduction initiatives, which also include year-on-year performance metrics, other third-party verified claims, etc.).[8]
  An example of this is the UN Race to Zero criteria, whereby companies are asked to pledge, plan, proceed and publish the target, including the actions planned to achieve it.

Examples of cross-sector initiatives and guidelines following the latest climate science are listed below:[9]

- SBTi Net Zero Standard requirements
- UNFCCC Race to Zero and other Race to Zero accredited organizations
- 1.5ºC Business Playbook by the Exponential Roadmap Initiative
- International Energy Agency (IEA) Net Zero 2050 scenarios (as long as interim targets have also been established)
- Net Zero Initiative
- Transform to Net Zero
- ISO guidance for Net Zero
- National or regional decarbonization pathways compatible with 1.5°C

Note: for SMEs,[10] SME Climate Hub Commitment/SBTi requirements for SMEs will be sufficient to meet this criterion.

4.2 GATE 2: LATEST CLIMATE SCIENCE ALIGNMENT

The solution (or end-solution of the intermediary solution) has mitigation potential according to the latest climate science[11] and recognized sources, and is not directly applied to activities involving exploration, extraction, mining and/or production, distribution and sales of fossil fuels i.e., oil, natural gas and coal.

To date, the following are considered "recognized" sources aligned with latest climate science:

- IPCC Sixth Assessment Report (AR6); or
- EU Taxonomy. Please note, should the EU Taxonomy be used as a reference, companies should comply with the significant contribution mitigation criteria to ensure the activity in question is indeed aligned to a 1.5°C scenario.[12]

This gate purposely excludes certain solutions that, although necessary in the transition to a decarbonized world, are not fit for a 1.5°C-aligned ambition for two main reasons:

- Transitional improvements (e.g., direct emissions reduction efforts) will already be reflected within the GHG emissions inventory. In fact, in line with Gate 1, we strongly recommend that companies continue to focus on making existing solutions more efficient.
- The guidance aims to ensure that solutions fit for a 1.5°C world are given their due credit and can be accounted for and recognized via avoided emissions.

Thus, and in line with Core Principle 4, any solution leading directly or indirectly to extending the life of assets not compatible with a net-zero world will not be eligible to claim avoided emissions, even though it might have short-term GHG benefits.

Example of a non-eligible case
Company A is connecting an oil field to the grid, thus enabling the oil extraction site to operate with lower carbon intensity energy from the grid instead of using oil. Company A cannot claim avoided emissions for this intervention, as it is applied to oil extraction, which is in the long-term not compatible with the global Net Zero target.

In practice:

- For each solution claiming avoided emissions, the solution's mitigation potential (or the end-solution in the case of an intermediary product) should be clearly identified and described, and the recognized source of the latest climate science should be mentioned (See Table 2 as an example).
- Two main sources are recommended as points of reference:

1. IPCC AR6 Working Group III Summary for Policymakers: mitigation options mentioned in the report, including in, "Figure SPM.7: Overview of mitigation options and their estimated ranges of costs and potentials in 2030."; or
2. EU Taxonomy: taxonomy-relevant activities with the significant contribution of mitigation criteria applicable to them.

Table 2: Illustrative claimed interventions with an identified link to mitigation options from the IPCC AR6 Working Group III Summary for Policymakers

Solution	Recognized mitigation potential
A reflective roofing solution that provides use-phase benefits by regulating the operational energy demand of a building, especially in warmer climates	Avoid demand for energy services
A compact design, tubular push conveyor and a new integrated grinding system enabling energy savings at customer sites	Energy efficiency in industry
A solution requiring a lower bake temperature	Energy efficiency in industry
Production of biogas/biomethane from sources like animal manure, organic waste or landfills	Reduce CH4 and N2O emissions in agriculture
Roof recycling programs at customer sites	Industry: enhanced recycling
Second-hand products	Material efficiency (avoids new manufacturing)
Insulation solutions for buildings	Avoid demand for energy services in buildings
Route optimizer software for ships enabling fuel savings	Shipping efficiency
A modeling tool to optimize the installation of PV panels	Solar energy
Services promoting and enabling micro-local tourism ("staycation")	Avoid demand for transportation
An application allowing users to have buy food at low-cost that would have been destroyed otherwise	Reduce food loss and food waste
Biofuel from organic food waste	Transport: Biofuels
Production of secondary materials (e.g., plastics, glass, aluminum, steel)	Circular material flows (e.g., enhanced recycling)

4.3 GATE 3: CONTRIBUTION LEGITIMACY

The solution has a direct and significant[13] decarbonizing impact.

This criterion is in line with the primary objectives of the guidance, which are to:

- incentivize innovation and the scaling of solutions we need to reach Net Zero globally. This eligibility criteria directly supports innovation at each level of influence within supply chains (for example, it would reward manufacturers of highly efficient EV batteries).
- ensure the high integrity of claims. This can lead to too many subjective interpretations on the necessary role of intermediary solutions and contribute to the conservativeness of claims (as per the guidance's core principles).

In practice:

A company should calculate and report on the system-wide emissions savings of the considered solution, justify why 100% of the reduction is directly attributable to its solution and that the expected impact is significant i.e., contributing to non-marginal emissions reduction for its customers.

Different archetypes of solutions can qualify:

A. "End-use solutions" with direct and significant decarbonizing impacts

- Example: a company manufacturing heat pumps.
  - **Decarbonizing impact:** the use of heat pumps will enable the company's customers to reduce their heating emissions vs. the average available heating solutions.
  - **Direct impact:** the solution directly contributes to emissions savings for users.
  - **Significant impact:** the solution's decarbonizing effect is expected to be significant vs. the average heating solutions.
- **Other examples:** biomethane from manure, second-hand products, bikes, trains, lower bake temperature solutions, renewable assets, alternative plant-based protein products, car-sharing apps, etc.

B. Intermediary solutions with direct and significant decarbonizing impacts

- Example: a company operating EV chargers supplying 100% renewable electricity.
  - **Decarbonizing impact:** allowing EVs to run on 100% renewable electricity vs. the average grid-mix.
  - **Direct impact:** yes, the charger directly enables users to reduce emissions.
  - **Significant impact:** yes, provided the average grid mix supplied by other chargers is significantly lower.
- Other examples: high-efficiency and low-carbon EV batteries, high-efficiency and low-carbon wind turbine rotors, low-carbon building material, highly efficient and low-carbon PV cells, etc.

C. Solutions that directly and significantly improve or optimize systems

- Example: a company retrofitting buildings to increase their energy efficiency.
  - **Decarbonizing impact:** energy savings for building inhabitants after the retrofitting.
  - **Direct impact:** yes, without the company's intervention, energy savings would not have occurred.
  - **Significant impact:** yes, the retrofitting of the building will enable > 30% of energy savings for inhabitants.
- Other examples: traffic optimization systems, electrical retrofitting for cars, demand side management systems, route optimizer software for ships, reflective roofing solutions regulating building energy demand, etc.

  As such, claims for intermediary solutions that are part of end-use decarbonizing solutions, but that do not themselves enable a direct mitigation effect, are considered non-eligible.

Examples of non-eligible solutions:

- A company manufactures conventional car seats for EVs.
  - **Decarbonizing impact:** transport emissions are lower than ICE cars when using EVs.
  - **Direct impact:** no, if replaced with another car seat model in the EV, the avoided emissions enabled by the use of the end solution (here the EV) would remain the same.
  - **Significant impact:** no, as impact is not direct.
- A company manufactures fertilizers that release 1% less nitrous oxide compared to the average fertilizers on the market for the same results.
  - **Decarbonizing impact:** less nitrous oxide release for the user.
  - **Direct impact:** yes, using this fertilizer should directly reduce nitrous oxide emissions by 1%.
  - **Significant impact:** no, the 1% impact expected is not material enough to be considered significant.[14]
- A company providing average concrete bases for wind turbines.
  - **Decarbonizing impact:** emissions reduction for users sourcing electricity from the wind turbines.
  - **Direct impact:** no, the concrete base does not directly contribute to the emissions reduction of the wind turbines.
  - **Significant impact:** no, as impact is not direct.

Example: how should a company demonstrate its alignment with all gates?

Company A wishes to assess avoided emissions through the sales of residential heating solutions. It manufactures and sells three types of products: heat pumps, heating oil boilers and special components for third-party heat pump manufacturers.

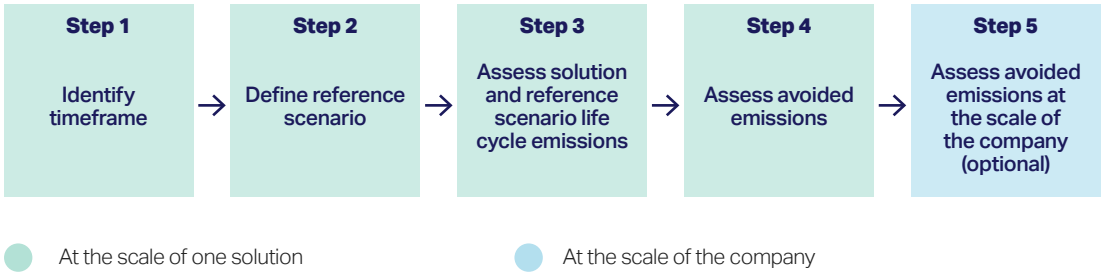
- **Gate 1:** Company A has been assessing and reporting its Scope 1-3 emissions for many years. It has recently committed to a science-based target with the SBTi and has adopted the Net Zero Initiative reporting framework. **Company A passes Gate 1**.
- **Gate 2:** Company A verifies whether those three products are linked to a macro-mitigation option. As broadly recognized 1.5°C-compatible solutions, **heat pumps and components for heat pumps do pass the test**. However, since heating oil boilers use fossil fuels and need to disappear to respect macro 1.5°C scenarios, **no avoided emissions can be assessed from the sales of heating oil boilers, even if those boilers replace more carbon-intensive boilers** (e.g., coal-based boilers).
- **Gate 3:** Company A verifies whether the two remaining products have a direct and significant decarbonizing impact. As heat pumps directly help end users decarbonize, **these heat pumps pass Gate 3**. But the special components for third-party heat pump manufacturers do not have a decarbonization effect per se, as alternative options fulfilling the same action exist (even though their emissions are accounted for in Scope 1-3). They just participate in the manufacturing of an end-use decarbonizing solution. **The manufacturing and sales of heat pump components do not pass Gate 3.**

In summary, after assessing its solutions against the three eligibility gates, Company A has identified that the manufacturing and sale of heat pumps are the only solution entitled to claim avoided emissions.

5 Assessing avoided emissions

This section provides guidance on how to calculate avoided emissions, including a detailed step-by-step approach to ensure consistency in the avoided emissions assessments undertaken by companies. It also introduces a specificity metric to track and report the granularity of the underlying data used for the calculation.

Figure 18: The 5-step approach to calculating avoided emissions



Please note, the description of the 5 steps below is purposely over-simplified. Please refer to the different subsections of this section to access the full details of the assessments.

5.1 KEY PRINCIPLES

- To claim avoided emissions in accordance with this guidance, the quantification shall only take place if the three eligibility gates are passed.
- Avoided emissions are an assessment of the difference in GHG emissions between a **solution** and a **reference scenario** that would occur without customers purchasing the solution.
- Both for the solution and the reference, GHG emissions shall be estimated as precisely as possible for their full life cycle (see Section 5.8 for more details on the different specificity levels).
- Practitioners need to distinguish between the impact of using a solution that replaces activities in the reference scenario, and those that are additional due to the convenience of the solution (e.g., a high number of participants in online conferences where only few of them actually correspond to travel that did not occur).
- The most probable conservative reference scenario and solution life cycle emissions shall be selected to estimate or aggregate avoided GHG emissions.

5.2 OVERVIEW OF THE 5-STEP APPROACH

The avoided emissions quantification follows a 5-step approach.

The calculation starts at the scale of each solution:

Step 1: Identify the timeframe of the assessment. A company identifies whether the solution's avoided emissions should be calculated on a forward-looking basis (all future life cycle avoided emissions are assessed in the year of sale), or on a year-on-year basis (avoided emissions are assessed every year from the year of sale, until the end of life of the solution). The timeframe should be consistent with the reporting timeframe of the solution's emissions in the company's GHG inventory assessment.

Step 2: Define the reference scenario. The reference scenario depends largely on the context of sales, as it depends on the way solutions will be used and the alternative scenarios that would have been chosen instead. To ensure credibility and avoid overstating the impact of the solution in place, the reference scenario should reflect the situation without the given solution based on recognized and well-documented assumptions.

Step 3: Assess a solution and reference life cycle's emissions. The company assesses life cycle emissions in a situation with the solution and in a reference scenario where the solution is not used.

Step 4: Assess a solution's avoided emissions. This is established by calculating the difference in emissions of a reference activity with and without the solution being used, taking into consideration the solution's entire life cycle.

Step 5: Assess avoided emissions at the company scale. Companies may assess their total avoided emissions by aggregating the avoided emissions of all solutions assessed following the four previous steps.

5.3 STEP 1: IDENTIFY THE TIMEFRAME OF THE AVOIDED EMISSIONS ASSESSMENT

The avoided emissions assessment of a given solution should be consistent with the timeframe used to assess its direct and indirect emissions as part of a company's GHG inventory, as per the guidance provided by the GHG Protocol Corporate Standards:

- **Approach A – Forward-looking avoided emissions.** If a solution's life cycle emissions are assessed and reported in the year of transaction in the company's GHG inventory, (e.g., Use of Sold Products – Category 11 Scope 3), then avoided emissions should also be assessed in the year of sale for the solution's entire life cycle. This option is particularly intended for companies that do not precisely monitor the use of solutions sold during their lifetime, or those wishing to understand the long-term implications of a given solution to define their strategy moving forward.
- **Approach B – Year-on-year avoided emissions.** If a solution's emissions are assessed and reported annually in a company's GHG inventory (e.g., Scope 1 or Downstream Leased Assets – Category 13 Scope 3), then avoided emissions should be assessed every year. In cases where a company has precisely monitored the use of solutions sold during their lifespan, the annual calculation makes it possible to use assumptions that are closer to reality. This approach is also useful for smoothing the claim of avoided emissions over the lifetime of solutions sold, in particular for large decarbonizing projects with long lifespans.

Depending on the context, both approaches may be the most suitable for communicating a company's strategic decisions.

5.3.1 Approach A – Forward-looking avoided emissions

If a solution avoiding emissions is one sold to end users, its avoided emissions should be calculated for its entire life cycle and reported in the year of sale.

This rule is consistent with a company's reporting of the use phase emissions of a solution, which are also calculated on the solution's entire lifetime and reported in the year of sale in the "Use of Sold Products" Scope 3 category.

In this case, the company should:

1. **Establish a solution's future emissions pathway** and assess the volume of greenhouse gases the solution is likely to emit during its entire lifetime (see Section 5.6.1).
2. **Establish the emissions pathway in the reference scenario** and assess the volume of GHG emissions that would have been emitted during the solution's entire lifetime.
3. **Assess the avoided emissions** by calculating the difference in emissions of a reference activity with and without the solution being used, considering the solution's entire life cycle.

Example

A company produces and sells a heat pump to an end customer that would have bought an average boiler instead. The company should:

1. Assess the forecasted emissions of the heat pump during its entire life cycle (production, use, end-of-life, etc.).
2. Assess the emissions of the reference average boiler, based on the life cycle of the heat pump.
3. Estimate and report the avoided emissions impact over the solution's lifetime at the time of the transaction.

For both solution emissions and reference emissions, the company should consider dynamic effects, such as forecasted electricity decarbonization and yield degradation of the heat pump and boiler. It should include potential direct rebound effects (e.g., a potential increase in the use of heating solutions), and also use reasonable and sourced assumptions on the lifetime and usage of the heat pump by customers (e.g., the average customer's learning curve to optimize settings).

5.3.2 Approach B – Year-on-year avoided emissions

If a solution avoiding emissions is one that is leased to a customer or directly operated by the company itself through a contract, its avoided emissions should be calculated and reported by the company at the end of the reporting year (ex-post), throughout the entire duration of the contract.

This rule is consistent with the company's reporting of the leased solution's use phase emissions, which are also calculated and reported on an annual basis, either in Scope 3 "Leased assets" or in Scope 1.

In this case, the company should:

1. **Calculate the solution's upstream and end-of-life emissions and reference** and distribute them accordingly across their lifetime.
2. **Establish on a yearly basis the use-phase emissions and the reference usage scenario for that year.** This reference scenario should account for the evolution of the reference solution's performance over time, considering additional knowledge about market changes, as well as potential replacements during the contract.

3. **Assess annual avoided emissions** by calculating the difference in emissions of a reference activity with and without the solution being used, taking into consideration the solution's entire life cycle.

For Approach B, the reference scenario still needs to be modeled, but unlike Approach A, there is no need to forecast:

- The future decarbonization of the energy mix, since the actual emissions factor can be updated for every year of calculation.
- The solution's future performance, since its actual use is known each year.
- Should companies with sold solutions choose to account for avoided emissions following Approach B, the reported avoided emissions shall also include the yearly avoided emissions of solutions sold in previous reporting years that are still in use during the reporting year in question.

Example

A company has a contract to install and operate low-carbon lighting equipment for 10 years. The company should:

1. Define the lifetime of the equipment and the reference (including its reference evolution over the lifetime of the solution) and allocate the upstream and end-of-life emissions accordingly to each year for the duration of their lifetime.
2. Assess every year throughout the contract duration:
    - The actual emissions of the lighting equipment during the year, based on the actual emissions factor of the electricity used.
    - The emissions in the reference scenario in the given year, based on the reference pathway established in the year of the transaction, considering dynamic effects (e.g., the share of usage that actually replaces other activities) and using the actual electricity emissions factor in the current year.
    - Incorporate the upstream and end-of-life emissions attributed to the given year to both the solution and the reference.
    - Calculate the annual avoided emissions by comparing the emissions in the reference vs. solution scenario.

How to determine which approach is more suitable for a given solution

Example 1

Company A sells electric city bicycles that facilitate a modal shift to bicycle use for intracity distances. This company tracks its year-on-year bicycle sales and reports its Use of Sold Products – Category 11 Scope 3 emissions (pertaining to the energy use associated with the sales of electric-assisted bicycles) at the time of sale of the bicycles over their entire life cycle. These factors lead the company to favor Option A (calculation over the lifetime to the year of sale) when reporting its avoided emissions.

In addition, this company does not track the use of the products it sells on an annual basis, which makes Option B irrelevant and confirms the use of option A.

Should the company instead put in place a shared bicycle service that leases bicycles on a trip-by-trip basis and is thus able to track their use, it would then be able to follow Option B and report avoided emissions on a yearly basis, which would also be the approach they would follow when reporting their in-use emissions (charging the electric bicycles) within their Downstream Leased Assets – Category 10 Scope 3 emissions.

Example 2

A railway transport company is building a new railway line. When the line is commissioned, a provisional plan for its use is made available, as well as the modal shift that is expected from it. With certain assumptions, the company can estimate its avoided emissions over the lifetime of the line, but it prefers to report on a yearly basis following Option B for the following reasons:

- Consistency with the reporting of its emissions (Pillar A). Indeed, the company will calculate emissions from the use and maintenance of the line as part of its GHG inventory.
- The calculation assumptions will be more precise with an annual calculation, for which data will be available, whereas the projections of the line's operation are uncertain at the time of its commissioning.
- Consequently, counting the avoided emissions on an annual basis can serve to better inform the company of the most favorable operating choices from a climate point of view.

5.4 STEP 2: DEFINE THE REFERENCE SCENARIO

The reference scenario is always a trajectory reflecting how emissions would evolve over time if the solution was not used. It shall also take the form of the total amount of emissions associated with the most likely alternative scenario, which is the sum of emissions during the selected time frame.

The reference scenario highly depends on the **context of the market in which the solution is used**. For instance, a bike sold to someone that wishes to replace an old bike is not likely to avoid emissions, whereas a bike used to replace short-distance car trips will avoid a significant amount of emissions.

To ensure credibility and avoid overstating the impact of a solution put in place, the reference scenario should reflect the most likely situation without the given solution based on recognized and well-documented assumptions during the solution's entire lifetime.

5.4.1 How do we define the "average solution"?

The notion of "average solution" depends on the context of sales and the array of existing solutions, facilitating the definition of the "most likely" scenario. For instance:

- The "average reference solution" in the context of the sales of heat pumps replacing old boilers should be the average heating solutions sold in a given market. If no information is available for the full range of solutions and their representativeness in a given market, companies should base their reference scenario on the most widely used solutions (i.e., top 25% of the market share).

  Example: the average reference solution in Country A should be a weighted average between all heating solutions (heat pumps, gas boilers, heating networks, electric radiators, etc.) sold in a given year. The weights should be taken from country statistics on the sales of heating equipment in the consumer market.

- "The average reference solution" in the context of a particular customer should be the specific alternative it would have chosen instead.

The choice of the reference scenario should thus be in line with the following process:

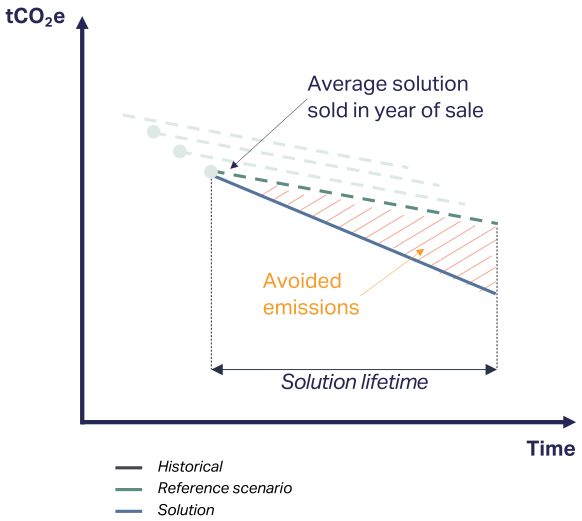
a) "New demand" situation

If a solution is used to fulfill a demand triggered by a growth in the customer's needs, no "previous situation" exists and it is therefore considered a **new demand.**

In this context, the reference scenario **should be the expected situation based on the market in the year of use for solutions with the same purpose**.

Example: Company A builds a new, low-carbon building. The reference is the average building emissions of its category based on what was built in the same year.

Figure 19: An example of new demand solutions with no previous reference situation



If companies are uncertain of whether the context is an existing or new demand ("Unknown" situation), the reference scenario should be defined following the new demand requirements.

b) "Existing demand" situation

If the context is an **existing demand**, whereby the solution is used to fulfill an existing level of activity, the solution will be considered able to replace or improve an existing system. In this context, the emissions in the previous situation are not zero.

If the solution **optimizes** an existing solution ("improvement case"):

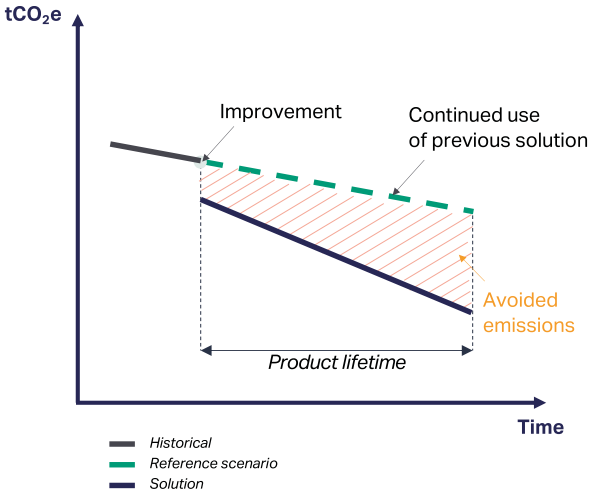
- If this improvement is **not imposed by exogenous factors (such as regulation),** the reference should be the continued use of the previous system without the improvement brought about by the solution.

  Example: Company A insulates homes. It performs a thermal renovation on a normal building. The reference situation is the continued use of the non-improved building over time.

- If this improvement is **imposed by exogenous factors (such as regulation),** the reference should be the average market solution to perform this kind of improvement.

  Example: Company A insulates homes. It performs a thermal renovation on a very inefficient building that the law requires to improve. The reference situation is the improvement on the average performance of the market for such buildings.

Figure 20: An example of solutions improving existing infrastructure



The reference is the continued use of the same infrastructure, without improvement. BAU energy decarbonization over time should be taken into account. Source: NZI

If the solution replaces an existing one ("replacement case"):

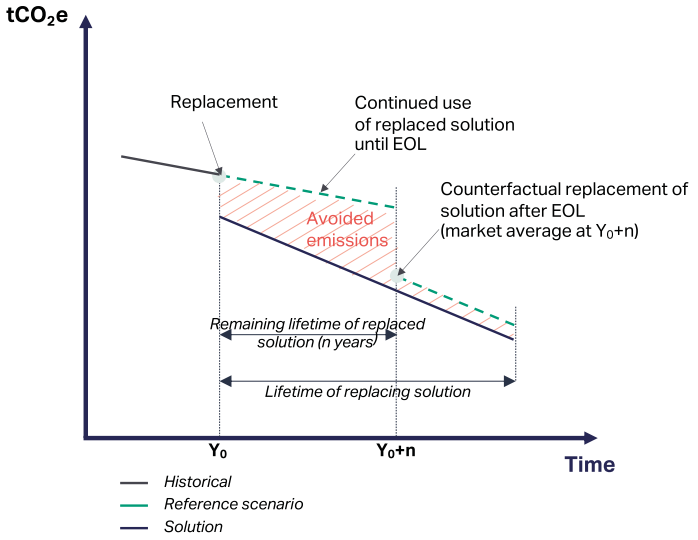
- If the replacement is **not imposed by regulation**, the reference should be the average solution that is chosen by the market to replace the existing one in the year of sale.

  Example: Company A installs a heat pump to replace an old, non-functional fuel boiler that needed replacement in a private house. The reference situation is the average heat solution that is currently sold for this type of house.

- If the replacement is **imposed by regulation,** the reference should be the average solution aligned to the new regulation chosen to replace the existing one in the year of sale.

Some replacements, whether imposed by legislation or not, can occur before the previous equipment's end of life. In this case, the reference scenario should theoretically first be the pursuance of the existing equipment until its expected end of life, and then a replacement by another solution. For simplification purposes, this guidance considers that all replacements occur at the end of life of the previous equipment. This choice is expected to be conservative, as it minimizes the amount of avoided emissions. Should companies wish to factor in an early displacement, they may do so as long as it is clearly justified and explained in the calculation process.

Figure 21: An example of solutions replacing existing alternatives where the reference should be chosen based on whether they respond to regulation changes



Note

The role of regulation

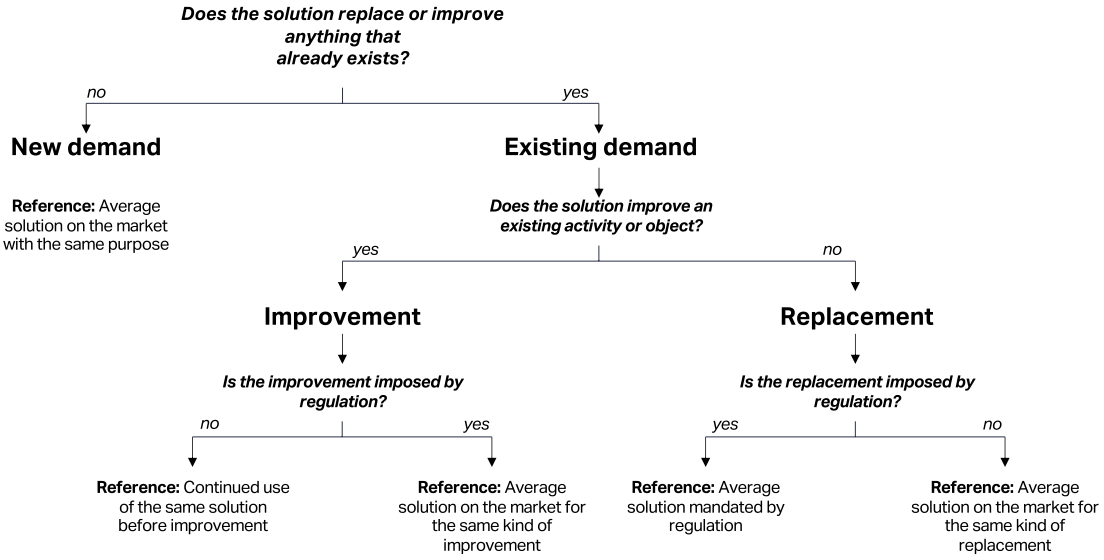
When the reference is the average solution on the market ("new demand" solutions, "existing demand" solutions when replacing an existing object at end of life), regulation is one of the key factors determining what the average solution is. Regulation should therefore necessarily be considered for the reference definition.

Examples:

- In Country X, a new environmental regulation for new buildings will directly influence what the "average new building" is in Country X.
- Similarly, in Country Y, a law for car manufacturers not to exceed an average carbon intensity for the vehicles they sell will directly influence what the "average new car" is in Country Y.
- Finally, a law introduced in Country Z that imposes a minimum rate of refurbished electronic equipment sold on the market will directly influence what the "average new smartphone" is in Country Z.

The following graph summarizes the avoided emissions assessment to be undertaken by users of this guidance when trying to determine the reference.

Figure 22: Determining which avoided emissions assessment to use



The two examples below illustrate how companies should follow the above decision-making tree:

Figure 23: An example of determining which avoided emissions assessment to use. Replacing a gas boiler with a heat pump in an existing building. The replacement occurs before the gas boiler's end of life and is not imposed by regulation

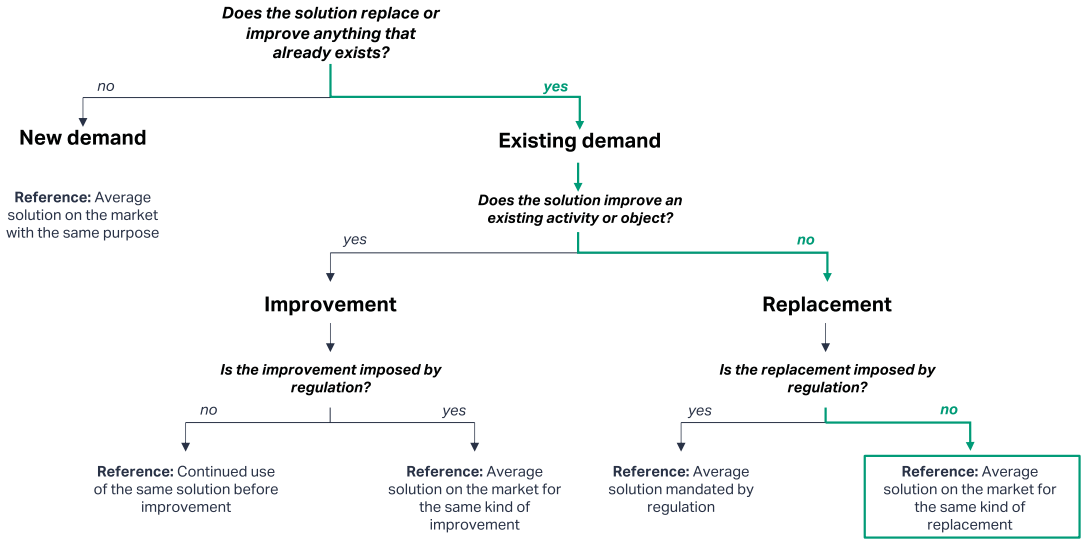
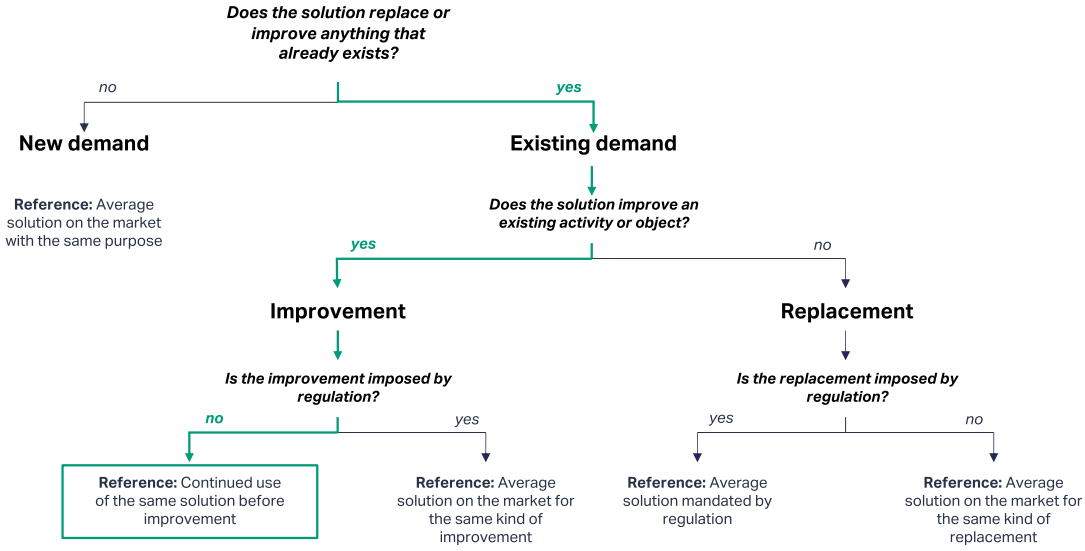


Figure 24: An example of determining which avoided emissions assessment to use. Converting a thermal car into an electric car



5.5 STEP 3: ASSESS THE LIFE CYCLE EMISSIONS OF THE SOLUTION AND THE REFERENCE SCENARIO

5.5.1 Definition of scope and boundaries

Avoided emissions **shall be calculated on the solution's entire life cycle and reference scenario** (i.e., emissions from production, use, end of life, transport, etc.), to the extent needed to establish the difference between the two cases.

The **timeframe** used to assess avoided emissions shall not exceed the timeframe associated with the solution's life cycle.

5.5.2 The attributional and consequential approaches

Two approaches can be used to calculate the life cycle GHG emissions of a given solution and its reference: the attributional and the consequential approaches.

Table 3: Definitions of the attributional and consequential approaches

Key characteristics	Attributional	Consequential
What is described or modeled?	Static inventory of absolute emissions and removals	Change in emissions or removals caused by a specific decision or action
System boundary	Processes used directly in the life cycle stages of the product physically produced or consumed	All and only the processes that change as a result of the decision studied, wherever they may occur in the system
How is it used to estimate comparative impacts?	Through comparisons of product GHG inventories developed using attributional life cycle accounting (LCA)	Through consequential LCA or policy and action accounting

Source: WRI (2019)

Certain avoided emissions frameworks recommend the consequential approach for decision-making purposes, but acknowledge the possibility of using the attributional approach as an interim approach if consequential data is not available.[15] Other frameworks have put forward a hybrid approach where consequential thinking is used to define the reference and solution scenarios, and where the life cycle assessment of both follows an attributional approach.[16]
In this guidance, WBCSD doesn't impose either methodology, but does request that companies provide a justification in either case and document the selected approach.

5.5.3 Calculation consistency

a) Consistency between the reference scenario and solution

The emissions calculations shall be consistent between the reference scenario and the solution delivered by a company. For this, companies shall use of the same declared or functional unit when undertaking an assessment, as well as account for the full life cycle GHG emissions for both the solution and the reference scenario.

Additionally, companies shall use emissions factors that account for the solution's entire life cycle (i.e., from cradle to grave), and not only for direct emissions related to the solution's operating phase.

b) Consistency with GHG inventory (Pillar A)

Companies shall ensure consistency between the avoided emissions (Pillar B) and generated emissions (Pillar A) they declare. To claim avoided emissions associated with the introduction of a decarbonizing solution, a company shall account for the carbon footprint of this decarbonizing solution in its Pillar A.

5.5.4 Double counting and avoided emissions

In accordance with Gate 3: Contribution legitimacy, **no allocation of avoided GHG emissions should be pursued**, as avoided GHG emissions should be quantified at the level of the enabled decarbonization effect of the considered solution.

This approach does not entail that claims should be unique. Double counting may occur when two entities in the same value chain account for the avoided emissions from a single solution – for example, if an EV battery manufacturer and an EV car maker both account for the avoided emissions resulting from the use of the EV battery. Depending on where a solution sits within a value chain, it may then become a component of another decarbonizing solution, which in turn will also account for its own total decarbonizing impact, including the avoided emissions enabled by its components.

Double counting avoided emissions between companies is considered acceptable because it is recognized that **each entity within a value chain has different levels of influence** over emissions and reductions. Similar to the Scope 3 rationale, this type of accounting **facilitates the simultaneous action of multiple entities** jointly contributing to global Net Zero via their own individual solutions.

Example

In the case of wind turbines using low emission concrete, even if the calculation methodology is specific to each stakeholder, avoided emissions associated with the use of low-emission concrete could be claimed by:

- The concrete manufacturer
- The wind turbine manufacturer
- The utility company that installs and operates the wind turbines and sells the green electricity.

5.5.5 Recommended data sources for the calculation of avoided emissions

Data sources recommended by the guidance include:

- Measures (e.g., product specifications and performance, metered data)
- A company's internally verified source (e.g., analysis of past projects, extrapolation of similar solutions)
- Supplier data
- External studies conducted by credible organizations (e.g., Label Energie Positive et Reduction Carbone, Green Building Councils, Fédération des Services Energie Environnement, , International Energy Agency)
- Regulations and standards (U.S. Environmental Protection Agency, UK Department for Business, Energy & Industrial Strategy, Réglement environnementale 2020, International Standards Organisation, Association Française de Normalisation, American Society of Heating, Refrigerating and Air-Conditioning Engineers, European Committee for Standardization)
- The Net Zero Initiative's standardized references and avoidance factors on the 2022 Avoided Emissions Guidance.
  - Customer data
  - Market data
  - Any other recognized source

5.6 STEP 4: ASSESS AVOIDED EMISSIONS

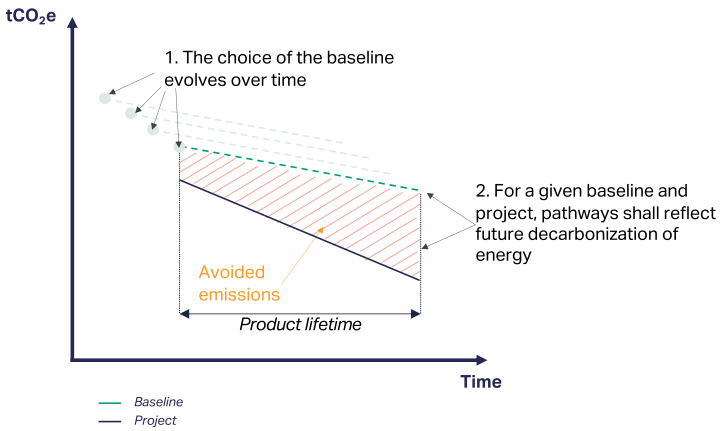
Avoided emissions are assessed by calculating the difference in emissions of a reference activity with and without the solution being used, taking the solution's entire life cycle into consideration.

5.6.1 Addressing the evolution of avoided emissions over time

Since avoided emissions are estimated over several years, **the dynamic aspect of the problem is fundamental**. Reference and solution emissions should thus consider the potential evolution of the situation over time, on different aspects:

- In all cases, the **emissions of both a reference and solution may evolve over time**, under the effect of the actual or predicted decarbonization of the energy consumed over a solution's lifetime. In the case of forward-looking avoided emissions, a company should use trend energy scenarios (e.g., IEA STEPS) to best assess the expected decarbonization of the energy sector for both the reference scenario and studied solution.[17] For other sectors that may have an impact on the emissions associated with a given solution, well-documented hypotheses must be used to define forward-looking scenarios.
- **The situation will depend on the year of sale**, especially for references reflecting the state of the market in a given year.

Figure 25: An example of a solution where the reference is the average solution that improves in the market over time



5.7 STEP 5: ASSESS AVOIDED EMISSIONS AT THE SCALE OF THE COMPANY (OPTIONAL)

Avoided emissions at the scale of the company are the aggregation of avoided emissions of all solutions sold. If the solutions target different emissions, the avoided emissions of different solutions may be added. However, if two solutions target the same emissions, the effect of the first solution on the addressable emissions must be calculated first, as the second solution will only impact the remaining emissions. Without considering this, a double calculation will occur.

Example

Company A has a solution that optimizes the energy demand of residential buildings and another targeting office buildings. These solutions do not overlap.

Company B has a solution reducing traffic flow and another optimizing the electricity use of EV applied in the same city. These cannot simply be added together, as the reference scenario of the EV optimization solution must consider the reduction of traffic flow.

This, in combination with the eligibility criteria assessment and specificity level associated with the approach companies take to calculate the avoided emissions of their portfolio (see Section 5.4), will provide a clear and comprehensive overview of a company's total avoided emissions.

Please note that the percentage of sales associated with avoided emissions claims shall be communicated alongside them (more information in Section 6).

5.8 ASSESSING THE SPECIFICITY LEVEL OF A CLAIM

The above notions describe the most specific type of calculation, where avoided emissions are assessed at the scale of a given solution and compared to a very specific reference corresponding to the introduction and use of the solution in a given context.

While this guidance encourages the use of the most specific calculation to assess a solution's avoided GHG emissions, it acknowledges that companies might need to deal with many different solutions and references, as well as the difficulty of obtaining primary data for their solutions and reference scenarios. For this reason, this section presents several levels of specificity that can be adopted for both solution and reference emissions calculations to minimize the level of complexity. Please note, companies will be required to disclose the chosen specificity level to report on a solution's avoided emissions.

Table 4: The various layers of specificity that can be adopted for both solution and reference emissions calculations

Approach	Specificity	Description	
		Solution (S)	Reference (R)
User-specific (or "Customer-specific")	**High** Recommended approach for specific solution assessments whenever data is accessible and assessments remain feasible with a reasonable number of resources	Specific life cycle emissions of each solution sold. The company performs a detailed calculation for each solution, considering specific usage scenarios Example: life cycle emissions of a specific electric vehicle sold by a company in Germany	Specific reference for each customer who uses a company's solution. The company performs a detailed calculation for each solution, with detailed knowledge of the context Example: reference behavior that the owner of this specific car would have adopted instead
Company-specific	**Medium** Recommended if the calculation of a solution's life cycle emissions or reference is too complex at the scale of each sale	Average life cycle emissions of a solution, specific to a company. The company performs a detailed calculation, considering a usage scenario by solution range and by market in which the solutions are sold Example: average life cycle emissions of all electric vehicles of the same type sold by a company in Germany	Average reference for a given company's solution sold in a given market. The company performs a detailed calculation, considering a reference scenario for each solution line and each market in which the solutions are sold Example: reference behavior that a company's average customer would have adopted instead
Market average	**Low** Recommended for market averages and preliminary evaluations of avoided emissions	Average life cycle emissions of the solution in a given market Note: In this approach, emissions are not specific to the company and can be standardized for a given type of solution in a given geography Example: average life cycle of a B-segment electric vehicle, all brands combined, sold in Germany	Average reference of the solution in a given market Note: In this approach, the reference situation is not specific to the company and can therefore be standardized for a given solution in a given geography Example: reference behavior that an average German owner of a B-segment electric vehicle would have adopted instead

The specificity level of an avoided emissions claim depends on i) the emissions of the solution itself, and ii) the reference emissions related to the context in which the solution is sold. For each of these two parts of the assessment, several levels of specificity are defined:

a) A solution's emissions can be either:

1. Its exact life cycle GHG emissions (see Section 5.2).
2. The average life cycle GHG emissions of the type of solution sold by a company.
3. The average life cycle GHG emissions of the type of solution in a given market. **As this average figure is not company-dependent, it can be established for a given geography and type of solution**.

b) A reference's emissions can be:

1. The exact life cycle GHG emissions of an alternative scenario that would have occurred in the absence of the solution for a specific end-user (see Section 5.2).
2. The life cycle GHG emissions of an alternative scenario that would have occurred in the absence of the solution for a company's average end user (e.g., average market solution at time of replacement).
3. The life cycle GHG emissions of an average reference situation applying to a specific type of solution sold in a given geography. **As this average reference is not company-dependent, it can be established for a given geography and type of solution.**

Therefore, the overall specificity level of an avoided emissions claim is established based on the level of specificity of a solution and reference scenario:

- The most specific avoided emissions ("Very high") will result from comparing the exact life cycle GHG emissions of a solution with the exact life cycle GHG emissions of an alternative solution that would have been used in the absence of the solution by a specific end user.
- Avoided emissions can be estimated by crossing different levels of specificity ("High" and "Medium," "Low" and "High," etc.).
- Purely statistical avoided emissions can also be calculated through the comparison of the emissions of an average type of solution with the emissions of an average reference for the solution in a specific geography. **As this calculation is not company-dependent, it is considered to have a "Low" specificity, but it can be standardized for a given geography and type of solution, making calculations easier.** In practice, this figure would give a generic amount of avoided emissions for the sales of a specific solution in a given geography. However, due to the dynamics of conditions and the assumptions involved, it is acknowledged that such estimates will reflect the assumptions made regarding the actual situation rather than the actual situation itself.

Companies should report the specificity level of their avoided emissions claims via the below scoring matrix, whereby claims associated with the specific life cycle emissions of a given product and its specific reference will be considered to provide the highest specificity ("Very high").

Please note that the low specificity is not necessarily bad. The choice of the level of specificity depends on the nature of a solution sold and what the company wants to explore through its calculations.

Table 5: Specificity levels matrix for avoided emissions claims

		Solution (S)		
Reference scenario (R)	**Specificity level**	Solution Specific (1)	Company Specific (2)	Statistical (3)
	Solution Specific (1)	**Very high**	**High**	**Medium-high**
	Company Specific (2)	**High**	**Medium**	**Medium-low**
	Statistical (3)	**Medium-high**	**Medium-low**	**Low**

Example

Avoided emissions through the sales of heat pumps.

Company A produces and sells heat pumps in Country X. To calculate avoided emissions, the company should 1) estimate the life cycle emissions of their heat pump, and 2) estimate what other means of heating (gas boilers, etc.) end customers in the given geographical area would have bought without the heat pump.

1. To estimate the life cycle emissions of its heat pump, Company A could:
    a. Use the specific life cycle analysis of this particular heat pump unit sold.
    b. Use the life cycle analysis of the model of the heat pump.
    c. Use the life cycle analysis of an average heat pump on the market.

2. To estimate the reference emissions of one heat pump sold, Company A could:
    a. Ask each customer what they would have done instead (e.g., with a survey or market study
    b. Make a statistical assumption of what their average customer would have done without the heat pump.
    c. Use the average reference for heat pumps sold in the given geographical area.

Company A has performed life cycle analyses of its own heat pumps and can therefore use a good level of specificity for the estimation of this solution's GHG emissions (S2). Since Company A did not perform any customer inquiries related to the use of its solutions, it will use the average reference for heat pumps sold in its end market, France (R3). This gives the company a specificity level of "Medium-low."

If Company A has not performed any life cycle analyses on its own heat pumps, it can use a purely statistical approach (S3 and R3), minimizing the effort required for the calculation and having a 'Low' specificity level.

6 Communicating and reporting avoided emissions

The standardized reporting of avoided emissions claims constitutes a key step toward creating greater comparability and consistency and minimize any misstatement risks. Avoided emissions calculated in line with this guidance shall be reported and communicated in accordance with the principles set out in this section, which also includes a suggested framework for companies wishing to communicate avoided emissions in line with the guidelines.

6.1 GUIDELINES FOR REPORTING AVOIDED EMISSIONS

6.1.1 Guidelines

When reporting and communicating avoided emissions in accordance with this guidance, companies shall comply with the following requirements:

1. **Avoided emissions shall always be reported separately** from:
   - GHG inventory footprints
   - Carbon sinks
   - Financial contributions to transition (abatement, avoidance or removals) outside of the value chain
2. **Avoided emissions shall not be used to claim a company's carbon neutrality**, net-zero emissions or any other claims implying a company's absence of impact on the climate.
3. When communicating and reporting at a solution level, companies shall **provide a description and the life cycle GHG emissions of the solution(s)** and reference scenario(s) on which the avoided emissions are based.
4. **Companies shall specify whether they used the forward-looking or year-on-year approach to quantify avoided emissions.**
5. Any reported and communicated avoided emissions **shall comply with the three eligibility criteria gates. Evidence of compliance with each gate (e.g., macro mitigation pathway and reference used for Gate 2) should be publicly available in the context of external claims.**
6. **Avoided emissions shall not be communicated externally without specifying which percentage of total revenue** the solutions generating those avoided emissions represent. This should be reported at the level of the entity claiming avoided emissions.
7. **Companies shall mention if the avoided emissions impact has been verified by a third party or not**.
8. Any **identified negative side-effects** of the solution(s) in terms of environmental trade-offs and sustainability goals beyond GHG impact **shall** be communicated publicly, with the **company providing a description of the actions undertaken to mitigate those effects.**
9. Companies **shall mention if they have identified potential rebound effects** and if they have been included in the assessment or not, and provide a description of their nature and the actions undertaken to mitigate them.

6.1.2 Additional considerations

Beyond the above reporting guidelines, companies should internally track (and are encouraged to communicate) the following calculation details:

1. Rationale behind the chosen reference scenario(s) (e.g., new/existing demand, improvement/replacement, led by legislation).
2. Whether attributional or consequential approaches were used for the assessment.
3. Sources and key hypotheses used to define and calculate the life cycle GHG emissions of the reference scenario and solution, including the solution's lifespan.
4. A quantitative estimate or qualitative description of the uncertainty of the results, listing key assumptions and limitations associated with the calculations.
5. A qualitative and quantitative assessment of the specificity score (see Section 5.3).
6. Any potential materiality threshold used in the calculation process.

6.2 COMMUNICATING AVOIDED EMISSIONS

Below is a suggestion for how companies could communicate avoided emissions in line with the above guidelines.

Figure 26: Recommended communications template for avoided emissions reporting

Description of the contribution

Solution and reference scenario description and life cycle GHG emissions (when communicating at a solution level):

Context and overview of the solutions in scope and reference scenario selection approach (when communicating at an entity level):

Acknowledgements

- O We comply with the three eligibility gates
- O We report avoided emissions separately from our GHG inventory
- O We don't claim climate neutrality through the use of avoided emissions
- O We assessed potential negative side-effects of our solution(s) in terms of environmental trade-offs and sustainability goals beyond GHG impact
- O We assessed potential rebound effects of our solution(s)

Impact

GHG emissions avoided:

Approach:

- O Year-on-year (20XX)
- O Forward-looking (20XX – 20XX)

% of total revenue (*at the entity level only*):

Limitations

Description of potential negative side and rebounds effects, and description of actions to mitigate these:

Eligibility Assessment

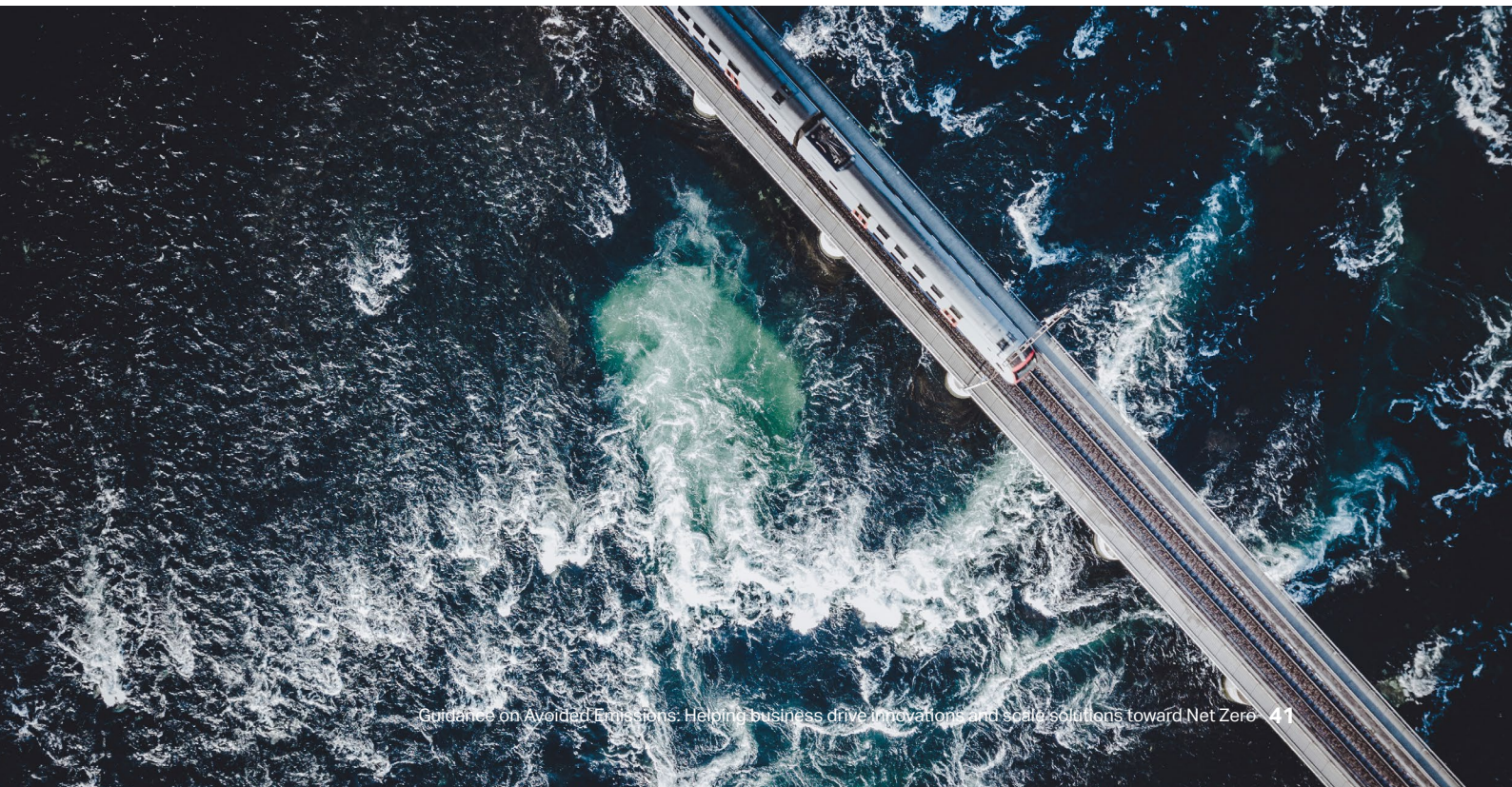
Gate 1 (Climate Action Credibility):

Gate 2 (Climate Science Alignment):

Gate 3 (Contribution Legitimacy):

Our approach to defining and calculating Avoided Emissions has been independently verified:

- O Yes
- O No



7 Limitations of the guidance

No distinction between real reductions of emissions and lesser increase of emissions.

No conceptualization of added emissions

If avoided emissions assess the benefit of a solution compared to a reference scenario, it could be possible to symmetrically define added emissions as the assessment of the negative impact of a solution compared to a reference scenario. It could, for instance, detect situations where solutions increase emissions or maintain a carbon-intensive situation, and therefore counteract efforts toward a 1.5°C-aligned pathway.

For instance, added emissions could be assessed in a situation where a car manufacturer sells a car to customers who would have otherwise continued using public transport.

This guidance does not conceptualize the notion of added emissions and focuses on avoided emissions. However, to prevent greenwashing in their reporting and communication, companies must always communicate the percentage of their sales that have generated avoided emissions. This enables the general public to deduce the percentage of sales that have not generated avoided emissions, including sales that generated added emissions. However, this does not reflect the numerical relationship between the amount of added and avoided emissions, as such emissions may not be distributed evenly over the portfolio. Companies are thus encouraged to add wording around the sales KPI to ensure these nuances are reflected alongside the KPI.

Limited safeguard on compatibility with other sustainability goals

In an initial draft of this guidance, a fourth eligibility gate was included to ensure no significant and new negative consequences on other sustainability goals were identified.

However, recognizing the lack of existing commonly well-recognized guidance to pursue this assessment in a robust and pragmatic way, a decision was made to move this criterion into the reporting and communication guidelines in this first version of the guidance. Such consequences are still considered important and companies are encouraged to ensure that unwanted side effects are avoided.

No quantified indicator for 1.5°C alignment for Gate 2

One of the most important eligibility criteria, Gate 2, consists of making sure the solution avoiding emissions is also compatible with 1.5°C scenarios. The guidance currently states that to pass Gate 2, companies must provide a qualitative analysis demonstrating that the solution is linked to a macro mitigation option.

No distinction between real reductions of emissions and lesser increase of emissions

Avoided emissions are the gap between a solution situation and a reference situation that would have occurred without the solution. Therefore, the reference is not necessarily the previous situation but a hypothetical situation. Avoided emissions are thus not necessarily an actual emissions reduction compared to a previous situation.

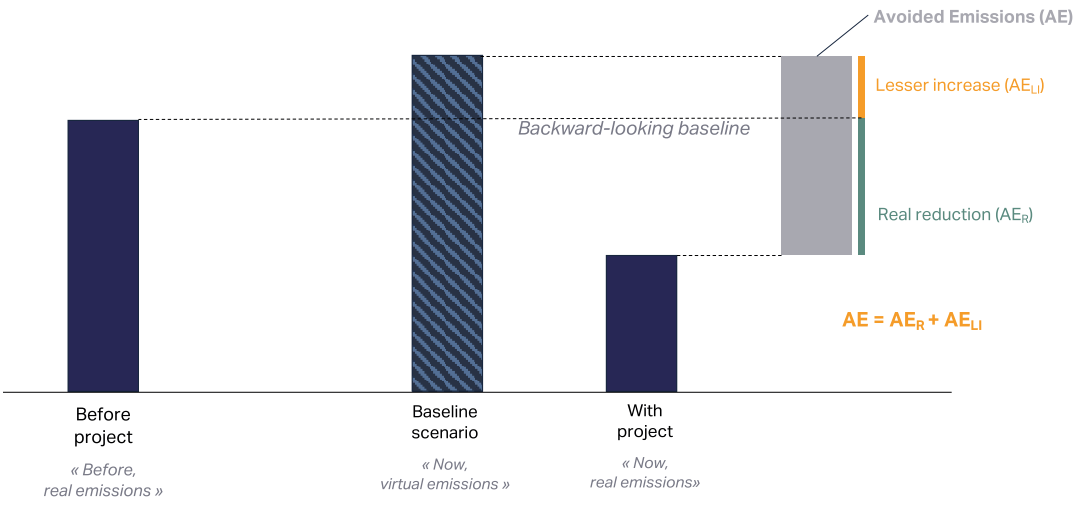
However, from an atmospheric point of view, only actual, absolute GHG emissions reductions count.

While this guidance does not require it, companies are recommended to quantify the percentage of the total amount of avoided emissions that correspond to "real emissions reductions" compared to the previous situation, rather than a "lesser increase" of emissions over time.

The first kind is called, "avoided emissions reflecting a real reduction" (AE_R). The second kind is called, "avoided emissions reflecting a lesser increase" (AE_{LI}).

Although this guidance acknowledges the difficulty of data collection, when calculating avoided emissions, calculations companies are encouraged to specify whether it is AE_R, AE_{LI}, or a mix of the two.

Figure 27: A volume of avoided emissions can be made of "real reductions" (AE_R) or "lesser increases" (AE_{LI})



Source: Net Zero Initiative

No sectoral guidance

The guidance does not currently propose any sector-specific recommendations.

Highly reliant on company hypotheses

While this guidance provides a step-by-step approach to the calculation of avoided emissions, **it is unrealistic to define the precise references and reference scenarios companies should follow** for each case. As such, it is highly reliant on company hypotheses as to what the most suitable reference is for each case. It is for this reason that the guidance advocates for a conservative approach when defining the reference scenario.

Differences with Net Zero Initiative (NZI) guidance

At this point, there are two main differences between this guidance and the existing Net Zero Initiative (NZI) guidance on avoided emissions:

- NZI does not include restrictions on which solutions are eligible for avoided emissions calculations. The 1.5°C compatibility of solutions allowing companies to claim avoided emissions is a non-mandatory recommendation.
- In the NZI guidance, companies selling intermediary solutions with no direct decarbonizing impact can claim some avoided emissions if they contribute to a decarbonizing end-use solution. In this case, the share of avoided emissions by the end-use solution the company is entitled to claim in its Pillar B is equal to the share of life cycle emissions of the solution the company reports in its Pillar A (consistency between avoided emissions [Pillar B] and generated emissions [Pillar A]).

8 Closing remarks

Avoided emissions assessments are an essential lever for companies looking to raise their ambition and contribution to global Net Zero via the development and scaling of decarbonizing solutions in the markets with the highest decarbonizing impact on society. In particular, there is an opportunity to further explore the use of avoided emissions into promoting more circular ecosystems.

This guidance represents a fundamental step toward a credible and robust use of the avoided emissions metric and aims to pave the way for the development of a standardized set of guidelines. This guidance is also a call to policymakers to use avoided emissions as a complementary key metric to drive the international climate change agenda in the next five years.

To this extent, the authors acknowledge that further work is required to ensure avoided emissions accreditation services among advisory firms, and capability building programs for decision-makers need to be developed to fully exploit the potential of avoided emissions in our ambition to stay in line with our global Net Zero goal.

9 FAQ

What is the difference between offsets and avoided emissions?

There are many differences between carbon credits and the avoided emissions of goods and services:

- Carbon credits do not always translate to a reduction or avoidance of GHG emissions. They can also indicate a removal of CO_2 from the atmosphere.
- Avoided emissions in the context of this guidance refers to the decarbonizing impact of products and services sold by a company; they depend on a company's strategy and activities. On the other side, a company can finance carbon credits outside its value chain; the transformative power of this metric for a company's activity is therefore much less.
- There are currently no standards available to certify the quality or reality of avoided emissions of company solutions.
- According to the definition of corporate "carbon neutrality" given by standards such as PAS 2060, carbon offsets can be used to claim, in certain conditions, a state of "carbon neutrality."

Can avoided emissions be calculated on a project-by-project basis in the case of contributions to reduction via a project rather a product?

Yes. This guidance aims to be applicable for any solutions provided by a company, regardless of whether that is a physical product, service or individual project. For the latter, the reference scenario should be based on the most likely alternative scenario, which could be another project with a lower decarbonizing effect (if this was a project that was going to be undertaken regardless and a Request for Proposals was made) or the absence of the project (if this was a voluntary project). As stated in the guidance, the choice and quantification of avoided emissions will thus be highly dependent on the context in which the project is delivered.

Can a solution claim avoided emissions even if the overall amount of emissions going into the atmosphere increases as a result of the product/project? E.g., a new building that is built to the highest green credentials

Yes, as long as it can be demonstrated that this solution is emitting less emissions than the most likely alternative scenario would have. In essence, this means the company in question should argue why this new building was required and how its life cycle emissions are lower than the average new builds in the market. For more information about this, please refer to the "lesser increase vs. real reductions" terminology found in the limitations of the guidance.

Is it possible to simultaneously claim a Scope 3 emissions reduction and avoided emissions?

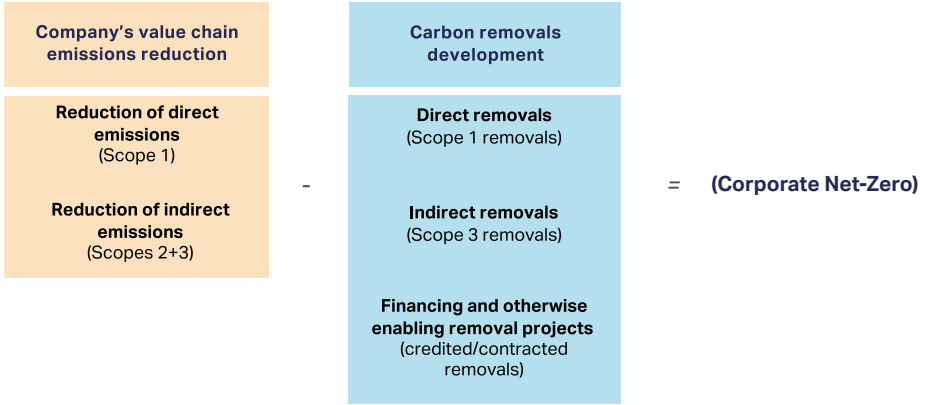
Yes. Please refer to Section 3.1.

What is the difference between corporate Net Zero (where avoided emissions are excluded) and contributions to global Net Zero (where avoided emissions are essential)?

The notion of corporate Net Zero, advocated by entities such as the Science Based Targets Initiative (SBTi) or Race to Zero, is based on the idea that the definition of Net Zero at the global scale (i.e., balancing emissions and removals) can be duplicated, as it is at the scale of an organization. In this perspective, only two main indicators matter:

- Corporate GHG emissions, which need to decrease following a 1.5°C pathway.
- Carbon removals, either inside or outside the value chain, which need to match the residual corporate GHG emissions around 2050.

Figure 28: Definition of corporate Net Zero



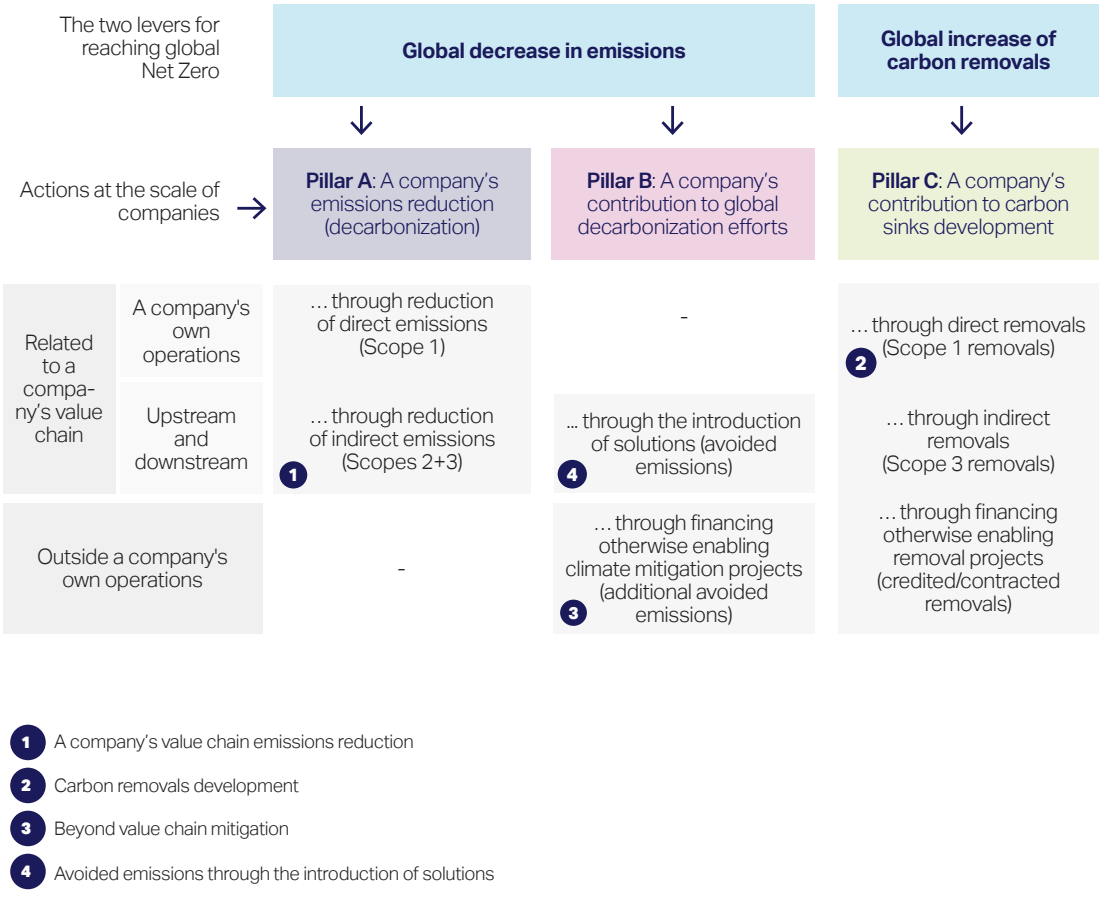
In this perspective, the emissions avoided by the introduction of solutions are out of scope.

The notion of contributing to global Net Zero advocated by the Net Zero Initiative, the UNFCCC "Climate Neutral Now" program, the French Environment Agency (ADEME), the Stockholm Environment Institute (SEI), Mission Innovation and others, considers that the role of entities is to contribute to global Net Zero at the right level of ambition. In this broader perspective, organizations are considered just one part of a collective system aiming for Net Zero, rather than separate entities that need to reach Net Zero at their own scale. To qualify a company's contribution to global Net Zero, four indicators are required:

1. Corporate GHG emissions, which need to decrease following a 1.5°C pathway.
2. Carbon removals, either inside or outside the value chain.
3. Contributing to the decarbonization of society through the financing of additional GHG reduction/avoidance projects outside the value chain, i.e., through the purchase of carbon credits.
4. Contributing to the decarbonization of society through the introduction/sales of solutions avoiding emissions, i.e., the decarbonization effect of solutions from the society point of view.

Each of the four indicators follows their own targets independently, and no netting is allowed (or even required) between them.

Figure 29: The corporate contribution to global Net Zero (adapted from the Net Zero Initiative)



1. A company's value chain emissions reduction
2. Carbon removals development
3. Beyond value chain mitigation
4. Avoided emissions through the introduction of solutions

What is the difference between Scope 3 emissions reduction and avoided emissions?

Please refer to the Section 2 of this guidance.

What is the difference between avoided emissions, Handprint and Scope 4?

Since its creation, experts have aimed to coin "avoided emissions" using a variety of alternative terms, namely "Handprint" or "Scope 4." This guidance believes "Scope 4" to be misleading, as it places avoided emissions on the same level as companies' GHG inventory emissions. While "Handprint" does create the necessary distinction, this guidance strongly recommends the use of "avoided emissions" to ensure consistency and avoid any miscommunications on the nature of this assessment.

Aren't avoided emissions just another greenwashing tool?

Avoided emissions have long been used in a misleading way by some companies wanting to find a way to divert attention from their GHG inventory emissions and focus only on the positive contributions of their activities on the planet. Some companies have even used avoided emissions to net their corporate GHG emissions and make abusive "Net Zero" or "carbon neutrality" claims.

Even when avoided emissions were not used in abusive communications, problems could have originated from dishonest assessments that would maximize the volume of avoided emissions, either from the choice of an unrealistic reference or from flaws regarding the scope of assessment, timeframe or allocation.

Another common mistake was assessing and reporting avoided emissions for products and services that either did not directly trigger a decarbonization impact or that were fundamentally incompatible with the 1.5°C global target (even though they did allow for some decarbonization locally).

However, when used correctly, avoided emissions are a very valuable indicator of a company's contribution to the decarbonization of society.

Therefore, this guidance wishes to:

- Give clear rules on the eligibility, assessment and reporting of those avoided emissions to forbid any misuse of this indicator.
- Rehabilitate the importance of well-defined avoided emissions to assess a company's contribution to the decarbonization of its ecosystem in the context of contributing to global Net Zero.

What about added emissions?

The guidance does not currently theorize the notion of added emissions, i.e., the assessment of all emissions a solution adds compared to a reference scenario. However, as the tools are the same ones used for avoided emissions (definition and comparison of a solution with a reference), it could be easy to include them in future versions of this guidance.

To prevent greenwashing, the current guidance makes it mandatory to quantify the percentage of revenue that generates avoided emissions. Although it does not enable companies to distinguish between solutions that add emissions and solutions that do not add nor avoid any emissions, it puts in perspective the proportion of decarbonizing solutions compared to a company's entire portfolio.

10 Glossary

Term	Definition
Added emissions	Added emissions are defined as the negative impact on society when comparing the GHG impact of a solution to an alternative reference scenario where the solution would not be used.
Attributional approach	A method that estimates comparative GHG impacts as the difference in product GHG inventories (constructed using attributional. (LCA) between the reference solution and assessed solution.
Avoided emissions	Avoided emissions are defined as the positive impact on society when comparing the GHG impact of a solution to an alternative reference scenario where the solution would not be used.
Consequential approach	A method that estimates comparative GHG impacts as the total, system-wide change in emissions and removals that results from a given decision or intervention.
Corporate Net Zero	Setting corporate net-zero targets aligned with meeting societal climate goals means (1) achieving a scale of value chain emissions reductions consistent with the depth of abatement at the point of reaching global Net Zero in 1.5°C pathways and (2) neutralizing the impact of any residual emissions by permanently removing an equivalent volume of CO_2.
Eligibility gates	The three criteria (climate action credibility, latest climate science alignment and contribution legitimacy) that companies must abide by to be able to claim avoided emissions in line with this guidance.
Global Net Zero	Condition in which anthropogenic GHG emissions are balanced by anthropogenic removals over a specified period and within specified boundaries. In this guidance, we refer to Global Net Zero to describe the internationally agreed upon goal for mitigating global warming in the second half of the century. The IPCC concluded the need for net-zero CO_2 by 2050 to remain consistent with a 1.5°C pathway.
Intervention accounting	An accounting method that quantifies systemwide impacts of a specific action or intervention on GHG emissions and removals relative to a counterfactual reference scenario that represents the conditions most likely to occur in the absence of the action or intervention.
Inventory accounting	An accounting method for GHG emissions and removals over time within a defined inventory boundary relative to a historical base year.
Life cycle GHG emissions	The sum of GHG emissions resulting from all stages of the life cycle of a product.
Rebound effect	Increased use of a solution as a consequence of its lower GHG emissions impact, which partly or fully cancels out the initial GHG emissions savings intended by the solution.
Reference scenario	A reference case that represents the events or conditions most likely to occur in the absence of the assessed solution. In this guidance, it is the scenario against which a solution is assessed to determine avoided emissions. "Reference Scenario" may be used interchangeably with "Counterfactual" or "Baseline" scenario in other avoided emissions guidelines.

11 Avoided emissions accounting principles

This guidance builds on the following accounting principles, which are based on conservative GHG Accounting Principles and are adapted to the nature and purpose of this paper to ensure that our recommendations on how to communicate avoided emissions are robust and credible.

1. **Relevance:** Ensure that the recommended GHG intervention assessment methodologies serve the decision-making needs of intended users. Present information in a way that is readily understandable for intended users.

2. **Accuracy:** Ensure that uncertainties regarding avoided GHG emissions reported are reduced as far as practicable. Achieve sufficient accuracy to enable intended users to make decisions with reasonable assurance as to the reliability of the communicated information.

3. **Completeness:** Promote the coverage of all life cycle GHG emissions within the specified boundaries of a company for the purpose of avoided emissions. Request the disclosure and justification of any significant GHG emissions that have been excluded.

4. **Consistency:** Choose methodologies, data and assumptions that allow for meaningful comparisons of a GHG assessment over time.

5. **Transparency:** Address and document all relevant issues in a factual and coherent manner, based on the principles of a clear audit trail. Disclose all relevant assumptions and make appropriate references to the methodologies and data sources used and avoid bias so that the solution faithfully represents what it seeks to.

6. **Precision:** Always select the most probable reference scenario to estimate or aggregate avoided GHG emissions.

7. **Representativeness:** Ensure the greatest degree of technological, temporal and geographical representativeness when calculating both the solution and the reference scenario GHG emissions.

12 Independent stakeholder statement

Throughout the process of preparing this guidance, an Advisory Group consisting of independent stakeholders from NGOs and academia provided feedback. The following stakeholders were consulted:

- Kaya Axelsson, Net Zero Policy Engagement Fellow at the University of Oxford; Strategic Advisor to the Race to Zero Campaign
- Pernilla Bergmark, Principal Researcher ICT Sustainability Impacts, Ericsson
- Johan Falk, Co-Founder and Head, Exponential Roadmap Initiative
- Gregory A. Norris, Director, SHINE@MIT; Co-Founder and Chief Scientist, Earthster
- Braulio Pikman, Technical Director, ERM
- Michelle Tulac, Senior Project Manager, Ellen McArthur Foundation

Barbara Dubach, CEO and founder of engageability facilitated a workshop to consolidate feedback. This statement was written based on individual input received from the Advisory Group.

Overall impression

The stakeholders agree that avoiding emissions is of high importance to achieving a global decrease in emissions. They appreciate the value of the WBCSD and Net Zero Initiative guidance assessing avoided emissions, especially the report's level of detail, focus, balance, credibility and accessibility.

The report aims at closing a gap by clarifying what counts as avoided emissions and positioning avoided emissions in the context of the business transformation required to achieve Net Zero emissions. The report also provides a holistic perspective on the topic and guidance on eligibility, and the principles for communicating and reporting are very valuable.

Further guidance, such as an avoided emissions methodology as well as a guidance on how to assess the financial implications of avoided emissions, will be needed to assist companies and it is encouraged to engage with other organizations that have already developed related guidance. Case studies showcasing how businesses are successfully creating, assessing or reporting avoided emissions would be useful, as well as examples on the impact of avoided emissions on multiple sectors.

Lack of data availability and reliable scenarios

It is acknowledged that estimates of avoided emissions are to their nature hypothetical as they compare a situation with a solution in place with the situation that would have existed without it. For this reason, a lack of data availability as well as the difficulty of establishing reliable, credible counterfactual scenarios (baselines) that serve as references are seen as key challenges by the Advisory Board. The UN Carbon Credit System [18] (Article 6.4) provides tools and more than 100 types of methodologies on how to establish reference scenarios in multiple sectors of the economy. A reference scenario determination methodology could be useful going forward, minding that this guidance is not oriented toward any carbon crediting systems. It was designed to guide the identification and estimation of avoided emissions. WBSCD is already working with the United Nations on several projects, and this could be another one.

Reducing Scope 1, 2 and 3 emissions vs. scaling avoided emissions

As the report highlights, it is not sufficient to focus only on avoiding emissions; they must be considered in the context of corporate carbon footprints. As such, organizations should disclose the percentage of their total revenue derived from avoided emission.

Engaging in avoiding emissions is a complement and not a replacement for addressing an organization's own footprint. However, in relation to the solutions that avoid emissions, h an important point of discussion is whether it is always more important to reduce related Scope 1, 2 and 3 emissions or if the focus should be on scaling solutions of radical emissions avoidance. The suggestion is to prioritize scaling, for example, for solutions with an emissions avoidance rate of 95% (the 95% threshold should be considered as an example) or higher, as they will bring about a significant net reduction on the human footprint. The counterargument is that Scope 1, 2 and 3 emissions reductions and avoided emissions are not mutually exclusive, as companies need to deliver on both at the same time.

It is also mentioned that it may be difficult to balance the argument of increasing avoided emissions versus decreasing Scope 1, 2 and 3 emissions, as WBCSD and Net Zero Initiative concur with the latest climate science stating that companies should reduce their emissions in line with the 1.5°C pathway presented by the latest IPCC 6th Assessment Report. To assess the trade-offs between the reduction of emissions and avoided emissions, a method to accurately calculate them is required. Avoiding emissions is critical to reaching Net Zero and the present guidance helps bring this forward while aiming to counteract the risk of greenwashing by putting avoided emissions in the context of wider company obligations.

The role of SMEs

Multinationals are encouraged to drive change in the value chain and collaborate with small and medium-sized enterprises (SMEs) to tap into new business opportunities that avoid and reduce emissions. Best practice examples are the "Responsible Care Program" as well as the SME Climate Hub, which will release a reporting tool guiding SMEs to disclose Scope 1, 2 and to some extent Scope 3 emissions, and an opportunity to also start disclosing avoided emissions solutions.

Ongoing development and updating of the guidance document

Open questions for the Advisory Group are how the report will be disseminated, how users can make the most of the report and which organizations will lead the ongoing development and maintenance of this guidance document. Like the development of life cycle assessments, it is not sufficient to publish a framework without updating it on a regular basis. Updates could be led by a consortium of several organizations and initiatives, including the UNFCCC, ITU, NDEE Network, MIT and the Carbon Handprint Approach (https://shine.mit.edu/), WWF, Exponential Roadmap Initiative and the MI Avoided Emissions Framework. For this purpose, creating a map of all the organizations and major initiatives working on this issue, and subsequently setting up a secretariat (which also may be a virtual partnership secretariat), would be worthwhile, along with exploring opportunities for creating a standard.

The Advisory Group congratulates WBCSD and Net Zero Initiative for the work conducted and is looking forward to the reactions to and further development of the guidance.

BIBLIOGRAPHY

Main existing guidance on avoided emissions

This guidance was built on the following key guidelines and frameworks:

- WRI (2019). Estimating and reporting the comparative emissions impacts of products.
- ILCA (2015). Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions.
- ICCA and WBCSD (2013). Addressing the Avoided Emissions Challenge.
- Mission Innovation (2020). The Avoided Emissions Framework (AEF).
- Carbone 4 (2022). Net Zero Initiative – The Pillar B Guidance. Assessing and leveraging avoided emissions.
- ISO (2019). ISO 14069 – Annex E on Avoided Emissions.

For further reading

Cross-sectoral guidance

- Entreprises pour l'environnement (2017). Émissions évitées. Les entreprises évaluent leurs solutions pour le climat.
- WRI (2014). GHG Protocol Policy and Action Standard.
- VTT (2018). Carbon Handprint Guide.
- ADEME (2020). Les émissions évitées : de quoi parle-t-on?
- Exponential Roadmap Initiative (2022). Framework for Natural Climate Solutions
- Exponential Roadmap Initiative (2022). The 1.5°C Business Playbook.
- Carbone 4 (2020). Net Zero Initiative – a framework for collective carbon neutrality.
- Carbone 4 (2021). Net Zero Initiative Report 2020-2021.
- ENGIE, Saint-Gobain and SUEZ (2021). Measuring The Contribution To Decarbonization Of Customers: The Need For Coherent Industry Standards.

Additional sectoral guidance

- WBSCD and International Council of Chemical Associations (2013). Addressing the avoided emissions challenge, Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies.
- EIT Climate-KIC (2019). Guidance on challenges to address for developing a methodology for contribution to GHGs mitigation in the recycling sector.
- A Methodology for Assessing the Environmental Effects Induced by ICT Services – Part II: Multiple Services and Companies. In 7th International Conference on ICT for Sustainability (ICT4S2020), June 21–26, 2020, Bristol, United Kingdom. ACM, New York, NY, USA, 10 pages.
- GSMA/Carbon Trust (2019) The Enablement Effect: The impact of mobile communications technologies on carbon emission reductions.
- ETSI/ITU L.1410 standard (part 2).
- ITU standards L.1430 and L.1440
- ITU (2022). ITU-T L.1480 Enabling the Net Zero transition: Assessing how the use of ICT solutions impacts GHG emissions of other sectors.

ENDNOTES

[1] The latest climate science at the point of publication of this guidance states that companies should reduce their emissions in line with the 1.5ºC pathway presented by the latest IPCC Assessment Report 6.

[2] Locked-in emissions are estimates of future GHG emissions that are likely to be caused by an undertaking's key assets or products sold within their operating lifetime.

[3] World Resources Institute (2019) Estimating and Reporting the Comparative Emissions Impacts of Products

[4] For the purpose of this guidance, "reference scenario" will be used to express the scenario against which a solution is assessed to determine avoided emissions.

[5] Although some Scope 3 categories are model-based (e.g. Category 11 – Use of Sold Products), they are considered real for the purpose of this explanation, as they become part of companies' year-on-year inventories.

[6] For illustration purposes – in this case (i.e., absence of a mitigation plan) the company would not be eligible to claim avoided emissions according to the three gates detailed later in this guidance.

[7] The latest climate science at the point of publication of this guidance states that companies should reduce their emissions in line with the 1.5ºC pathway presented by the latest IPCC Assessment Report 6.

[8] The latest climate science at the point of publication of this guidance states that companies should reduce their emissions in line with the 1.5ºC pathway presented by the latest IPCC Assessment Report 6.

[9] The landscape of carbon accounting and target setting is evolving at an increasing speed. For this reason, this list may be updated in the future to reflect any updates.

[10] SMEs as per EU definition: < 250 employees, and/or ≤ € 50 m Turnover and/or ≤ € 43 m balance sheet total.

[11] See latest climate science definition above.

[12] The reasoning behind this requirement is that the very ambition of the EU taxonomy is to decarbonize the most carbon intensive activities within the EU. For this reason, many of the activities listed within it would not necessarily be 1.5°C aligned by themselves. Rather, they need to be below the significant contribution mitigation criteria to be considered as such from an emissions standpoint.

[13] We have purposely not included a threshold to ensure enough flexibility in terms of how companies define materiality. However, companies will be expected to report how their solution contributes to avoided emissions and provide sufficient detail in their calculation to minimize the risk of misstatements. Further development of best practices regarding thresholds is expected.

[14] We have purposely not included a threshold to ensure enough flexibility in terms of how companies define materiality. However, companies will be expected to report how their solution contributes to avoided emissions and provide sufficient detail in their calculation to minimize the risk of misstatements.

[15] Estimating and reporting the comparative emissions impacts of products. WRI, 2019.

[16] ITU-T L.1480 Enabling the Net Zero transition: Assessing how the use of ICT solutions impacts GHG emissions of other sectors. ITU, 2022.

[17] Since both solution and reference scenario will need to adapt the same forward-looking scenarios, this would effectively normalize any potential overstating.

[18] The UN Carbon Credit System is the new system under construction replacing the Clean Development Mechanism. Voluntary frameworks on carbon credits are also valuable sources.

DISCLAIMER

The Advisory Group provided feedback throughout the process of developing this report. However, responsibility for the final content lies with the authors. As a basic principle, the views expressed by the Advisory Group members are individual views and may not reflect the views of the respective organisations or employers.

ACKNOWLEDGMENTS

This guidance is co-authored by WBCSD and Net Zero initiative with following main contributors:

- Cecilia Valeri, Manager, Climate Transparency, WBCSD
- Diane Buzea, Senior Associate, Climate Action, WBCSD
- César Dugast, Manager, lead of Net Zero Initiative, Carbone 4
- Antoine Crépel, Senior Consultant, Carbone 4.

This guidance is the result of an iterative process, incorporating feedback along four consultation rounds from sustainability leaders representing WBCSD member companies. Following this process, 19 companies confirmed to support the guidance:

1. AbinBev
2. Aditya Birla Group
3. Bridgestone
4. CircularTree GmbH
5. Clean Energy Fuels
6. Eaton
7. EDF
8. EDP Energias de Portugal
9. Enel
10. Engie
11. H.O. Sabanci Holding A.S.
12. Hitachi, Ltd.
13. Iron Mountain
14. J.M. Huber Corporation
15. OCP Group
16. Panasonic Holdings Corporation
17. Siemens AG
18. Sika
19. Veolia

The authors wish to thank in particular Engie with the support of its entities Engie Impact and CRIGEN, AbinBev, Dow, Iron Mountain and Veolia for co-initiating this effort and their continued active support along the writing of the guidance. WBCSD extends special thanks to the Exponential Roadmap Initiative for supporting this collaboration throughout the process.

To ensure the highest integrity standards, an advisory group was consulted and asked to provide independent feedback throughout the entire process. Their independent statement can be found in the following section.

ABOUT THE NET ZERO INITIATIVE (NZI)

Net Zero Initiative (NZI) is the very first framework dedicated to the contribution of companies to global net zero. Led by the consulting firm Carbone 4 since 2018, NZI aims to empower businesses to transform their activities towards a net zero economy.

Offering an alternative to corporate net zero and carbon neutrality claims, Net Zero Initiative focuses on giving companies the tools to contribute fairly to the global net zero target by acting on three key pillars of the climate transition: decarbonization, avoided emissions and carbon removals.

https://www.net-zero-initiative.com/

ABOUT THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD)

WBCSD is the premier global, CEO-led community of over 200 of the world's leading sustainable businesses working collectively to accelerate the system transformations needed for a Net Zero, nature positive, and more equitable future.

We do this by engaging executives and sustainability leaders from business and elsewhere to share practical insights on the obstacles and opportunities we currently face in tackling the integrated climate, nature and inequality sustainability challenge; by co-developing "how-to" CEO-guides from these insights; by providing science-based target guidance including standards and protocols; and by developing tools and platforms to help leading businesses in sustainability drive integrated actions to tackle climate, nature and inequality challenges across sectors and geographical regions.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD $8.5 trillion and 19 million employees. Our global network of almost 70 national business councils gives our members unparalleled reach across the globe. Since 1995, WBCSD has been uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

Together, we are the leading voice of business for sustainability, united by our vision of a world in which 9+ billion people are living well, within planetary boundaries, by mid-century.

www.wbcsd.org

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