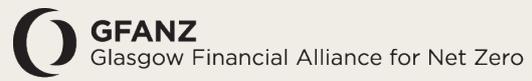


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Thank you to our Knowledge partners for their contributions to this paper:



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Preface

Since the mid-1990s, frameworks like the Greenhouse Gas Protocol (GHG P), Carbon Disclosure Project (CDP), Global Reporting Initiative (GRI) and – more recently – Task Force on Climate-related Financial Disclosures (TCFD) and Partnership for Carbon Accounting Financials (PCAF) have laid out the foundation for emissions measurement, disclosure and reduction by private market actors. These frameworks focus on the quantification of generated or financed emissions following an inventory accounting approach which in turn should lead to accountability and strategies to reduce these emissions.

While reduction-led efforts play a critical role in countering the surging climate crisis, humanity is not on track to limit global warming to 1.5°C above pre-industrial levels. In 2030, greenhouse gas (GHG) emissions must go down 43% compared to 2019 levels to hit net-zero emissions by 2050. However, current emissions reduction commitments for 2030 are only at 7%. Furthermore, climate change and other grand societal challenges (biodiversity preservation, water security, health, and migration, to name just a few) are becoming increasingly interconnected and complex. Inevitably, the various solutions and global efforts to address such grand challenges need to align better, meaning private sector collaboration and coordination are the key to accelerating the systemic transformation processes needed.

To effectively accelerate systemic decarbonization, it is necessary to identify and implement climate solutions in those markets or contexts where they have the highest decarbonization potential. To date, instances of coordinated, large-scale, cross-regional, and measurable climate action are rare. Even though desirable outcomes are increasingly formulated and defined (e.g., decarbonized value chains, circular material flows), the concrete pathways to collectively move in that direction remain obscure. Different to generated emissions, there are no generally accepted frameworks yet to measure and compare the decarbonizing impact of solutions or companies, wherefore alignment on the directions of change across solution portfolios is largely lacking.

Assessing and comparing the decarbonization potential of climate solutions requires a robust context-specific methodology. For this, an intervention-based approach that allows for the measurement and comparison of systemic GHG impacts should complement the dominant inventory accounting perspective. Thus, it is essential to consider both the emissions reductions within the boundaries of organizational activities (=inventory) and the indirect, systemic emission reductions that other actors are able to realize through the adoption of market or financed low-carbon solutions (=intervention). Here, we typically refer to the latter as “avoided emissions”.

While intervention or consequential impact accounting methodologies are not new (they are applied at a project level, among impact-led investors and in the carbon credit context), they lack common terminologies and technical foundations and a comprehensive approach for aggregation on the entity level. The WBCSD published its first cross-sectoral Guidance on Avoided Emissions in 2023. Various industry, policy and finance actors have well received and referenced the guidance. The G7 Climate, Energy, and Environment ministers referred to the guidance along with an open mandate to build “trusted financial mechanisms to mobilize resources and accelerate the deployment of solutions”.¹

Targeted finance, monetary incentives and transformative policy instruments need to align with real economic strategies and methodologies to unlock large-scale decarbonization. Increasingly, policy and finance actors seek to complement a risk- and reduction-led approach with an opportunity-led perspective based on clear directionality to invest in future-proof sustainability solutions. In 2023, we started closer engagement and collaboration with financial actors, such as in the context of a case study paper with the Japanese GX League and a joint United Nations Climate Change Conference (COP28) event with financial institutions and coalitions such as the Glasgow Financial Alliance for Net Zero (GFANZ) formed during COP26.

These early collaborations led to a wider convening and more in-depth exchange with financial actors and to the scoping of this insight paper. We take a practitioner perspective and explore the links between select corporate finance asset classes and avoided emissions use cases. We selected the asset classes discussed in this paper because they represent key areas at the intersection of corporate and sustainable finance. We do not mean for this paper to develop a new taxonomy or framework but rather to consolidate the status quo and inspire further work on this important intersection.

In short, the purpose of this insight paper is to:

- Provide practical guidance and case examples how companies and financial actors can leverage avoided emissions solutions across asset classes and financial instruments (private equity/venture capital, public equity, sustainability-linked loans, green bonds);
- Demonstrate the added value of avoided emissions perspectives in the context of low-carbon solution financing and wider net-zero emissions trajectories;
- Discuss good practices and current challenges in avoided emissions assessments, attribution and reporting for companies and financial institutions;
- Provide an overview of the current regulatory and (voluntary) standards landscape for financial actors and companies in the avoided emissions context.

WBCSD has collaborated with and learned from prestigious financial organizations and coalitions in the process of authoring this piece. We aim to facilitate and moderate the exchange between business, finance and policy when jointly progressing towards closer and more impactful collaborations between businesses and financial institutions to effectively tackle climate change. Due to the innovative and collaborative nature of avoided emissions, the concept of financing avoided emissions can be a “connecting fiber” between finance and business to accelerate decarbonization and provide guardrails for the direction of change in systemic transformation processes.

The role of financial institutions *in decarbonizing the economy*



01.

01. The role of financial institutions in decarbonizing the economy

1.1 Measuring the contributions of private actors to decarbonization

While the urgency for targeted and effective climate action is high, global economic systems are not transforming fast enough to achieve net-zero emissions. The financial industry can be a key factor in accelerating systems transformation. As such, financial institutions can have a direct impact through engagement and stewardship and by mobilizing capital and offering tailored financial products to promote low-carbon innovation. Public markets and credit financing can become similarly important pillars in driving systemic decarbonization, not least because of the sheer volume of assets under management (AuM) that they represent. As financial institutions are increasingly committing to portfolio alignment with net-zero targets and recognize the relevance of real-economy emissions reductions, the need to also understand systemic future impacts of invested assets and entities is greater than ever.

Trying to assess solutions based on their annual carbon footprint and on their future decarbonization potential requires a context-specific and forward-looking assessment methodology. For this, an intervention-based perspective should complement the dominant greenhouse gas (GHG) inventory accounting perspective in climate-related disclosures to better measure the wider (future) GHG impacts of products and services.² To date, companies have mostly applied the intervention perspective on the level of individual projects and in carbon market programs, such as in the Greenhouse Gas Protocol (GHG P) Project Accounting Standard and the Policy and Action Standard.

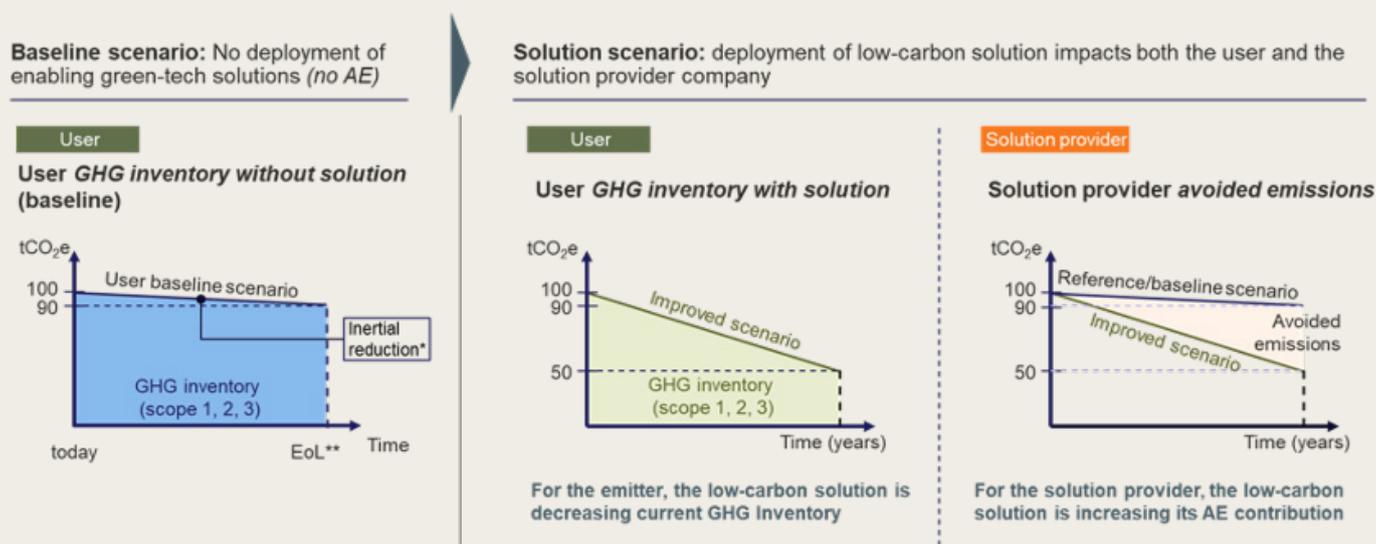
It requires clear guidance and a robust methodology on how to apply intervention accounting at the entity or corporate level and how it relates to GHG inventories. Avoided emissions (AE) is a concept that emerged in this context, largely driven by industry practitioners, and recently also picked up by standard setters and regulators. WBCSD published its first cross-sector Guidance on Avoided Emissions in March 2023 and received positive feedback from industry, policy and finance. The 2023 G7 minister's communique mentioned the Guidance on Avoided Emissions and connected financial mechanisms. Germany's novel, multi-billion Climate Contract for Difference program, Japan's Green Bond program, the People's Bank of China's carbon emission reduction facility (CERF), and the Low Carbon Fuel Standard (LCFS) in the US also use AE-based assessments.³

Related to the concept of avoided emissions, concepts such as Expected Emissions Eeduction (EER) and Emissions Reduction Potential (ERP)⁴ have recently emerged in climate finance because financial institutions want to measure and disclose the future climate impact of their investments. The EER concept introduced by the Glasgow Financial Alliance for Net Zero (GFANZ) builds on avoided emissions and ERP methodologies and therefore on similar intervention-based logics. The company assesses the climate impacts of a solution or entity by comparing a factual solution scenario with a hypothetical reference scenario based on the most-likely alternative that would occur without the solution scenario in place. EER, ERP and avoided emissions reflect a forward-looking perspective (lifetime impact, in line with GHG Protocol Scope 3 Product use accounting) or provide annualized assessments.

Current avoided emissions methodologies focus on climate solutions, with most referring to “sum-of-the-parts” logics when consolidating the avoided emissions of low-carbon solutions at the entity level and separating between fossil fuel and non-fossil fuel activities with a strong emphasis on the latter.⁵ The ERP approach has a solution as well as entity focus, proposes integrated impact assessment methodologies at the entity level and covers both fossil fuel (phaseout) and non-fossil fuel activities.

Due to the conceptual similarities and need for a coherent standard landscape, we reference all concepts this paper, but the focus remains on the avoided emissions concept.

Figure 1: Illustration of avoided emissions from user and solution provider perspectives (schematic/simplified)



* Assuming that user emissions/ business-as-usual would reduce over time inertially (mainly due to decarbonization of grid mix);

** End of life estimated by the solution provider

1.2 Avoided emissions in the investment process

In March 2023, WBCSD released its Guidance on Avoided Emissions. It focuses on avoided emissions solution claim eligibility, assessment and disclosure for mid- to large-sized companies. We developed the guidance from an iterative stakeholder consultation process with multinational companies and supported by an independent advisory group of NGOs and academia. We considered perspectives from companies, financial institutions and policymakers to leverage avoided emissions assessments to accelerate the path to a just transition and 1.5°C-compatible society.

Avoided emissions can support climate action in the finance sector as they provide an opportunity-led approach to the current risk-dominated perspectives on climate action. Investors can use this metric to assess the environmental potential of a technology's decarbonization beyond an asset's direct footprint and examine the prospect of investing in them as a contribution to decarbonization. Avoided emissions can strengthen the ties between industry and finance decarbonization efforts when stakeholders have further advanced and aligned technical/methodological frameworks, allocation rules, practical guidance on asset classes/financial products and terminologies.

Because of the differences in corporate sustainability reporting requirements globally and the nascent avoided emissions standards landscape, the integration of avoided emissions in the investment process will unfold at varying rates.

Regulators and standard setters in the US, EU and Asia are showing initial signs of avoided emissions adoption (see Section 5). More generally, the G7 climate, energy and environment ministers have highlighted the added value that avoided emissions can bring in transforming systems and emphasized the relevance of trusted financial mechanisms to promote investments and capital exposure in low-carbon innovation.

This paper adopts a practical perspective on the status quo and discusses the (potential) use of avoided emissions among financial institutions based on different financial products and asset classes. It explores the role different asset classes play in financing and enabling high-impact climate solutions and how avoided emissions provide a basis to support investment theses and prioritization in portfolio management. For this purpose, we examine real economy use cases to provide actionable guidance on the application of avoided emissions in finance (sections 2 and 3). It is important to note that avoided emissions methodologies are in an early adoption phase and that standardization is lacking. Therefore, the content of this paper is indicative and inspirational but does not provide a technical or methodological framework. We discuss current challenges in terms of data, regulation, terminology and disclosure in Section 4 and outline regulatory landscapes in Section 5.

Avoided emissions use cases *in sustainable finance asset classes*



02.

02. Avoided emissions use cases in sustainable finance asset classes

A company contributes to decarbonization through: (i) its reduction of direct and indirect emissions caused by its own operations and in its supply chain and (ii) its contribution to the decarbonization of other actors' emissions by introducing climate solutions. So far, climate-related reporting and metrics have mostly centered on the quantification and reduction of direct and indirect emissions and risk/opportunity management. Climate disclosure frameworks and standards such as the Global Reporting Initiative (GRI), Carbon Disclosure Project (CDP), Task Force on Climate-related Financial Disclosures (TCFD) and the GHG Protocol focus on quantifying and disclosing (annual) carbon inventories based on absolute emissions. From a financial institution perspective, they typically capture these (generated) emissions as absolute or financed emissions in climate-related disclosures following the Partnership for Carbon Accounting Financials (PCAF) Global GHG Accounting and Reporting Standard⁶ or other standardized allocation approaches.

While financed emissions reporting is crucial to create the necessary transparency and accountability for the emissions generated by investees, it does not yet directly incentivize capital allocation to climate solutions with decarbonization impact beyond the GHG inventories of the investee. Complementing these frameworks, accounting for the positive climate impact of loans and investments and supporting decarbonization efforts in the real economy will require additional ways of assessment and incentivization.

Avoided emissions can provide an additional perspective in support of decarbonization-led investment theses – and, consequently, better direct and incentivize capital mobilization towards low-carbon solutions. Avoided emissions

are a powerful metric to validate the theory of change of an investment thesis and articulate the outcome delivered by an invested solution or entity. Investors can refer to avoided emissions to define impact investment goals and use them to develop a strategic roadmap to deliver change by understanding the preconditions of the current market and the assumptions in delivering the additive impact. The consideration of avoided emissions offers an additional dimension to attract funding for climate solutions and can assist (high-emitting) sectors in developing and implementing effective transition strategies.

How do these concepts of avoided emissions apply to financial instruments and create links to real economy use cases? The following sections explore this question through the lens of four asset classes: venture capital and private equity (2.1), public equity and bonds (2.2), sustainability-linked loans (2.3) and green bonds and project finance (2.4). We've chosen these asset classes as representative (but not exhaustive), commonly applied examples to understand how avoided emissions can support financial institution decisions in developing and implementing their climate investment strategies.⁷ For each of these products, we discuss the use of avoided emissions on three aspects:

- Stage of investment process – identifying when avoided emissions are most relevant and impactful in steering investments to green solutions;
- Useful resources and limitations – evaluating data availability, considering different baseline scenarios and providing guidance to enhance economic impact;
- Expected developments on the use of avoided emissions in the industry.

2.1 Venture capital & private equity

- Private equity (PE) is capital invested in a company or other entity that is not publicly listed or traded.
- Venture capital (VC) is a form of private equity financing provided by venture capital firms or funds to start-ups, early-stage and emerging companies.

This section discusses avoided emissions considerations for VC and PE fund managers (meaning general partners or GPs) and the asset owners who invest in the VC/PE products (meaning limited partners or LPs).

The growth of the global impact investing market to around US \$1 trillion in assets under management shows the increasing relevance of addressing societal challenges next to creating financial returns.⁸ While assessing the companies for fund allocation, PEs and VCs typically analyze the entity in different stages: (i) screening and due diligence, (ii) stewardship and engagement during growth management and (iii) exit. This chapter mostly focuses on (i) and (ii).

2.1.1 Screening and due diligence phases

When assessing potential investment opportunities, GPs can leverage the additional insight avoided emissions bring throughout the investment cycle. This underscores the importance to conduct pre-investment analysis and work with such metrics as a complementary indicator to enhance corporate value. The incorporation of forward-looking metrics in financial products is one component in the suite of metrics that measure climate performance. We summarize the potential areas of insights as follows:

- 1 Decarbonization potential**
 - AE as a quantitative impact and tangible metric to assess decarbonization potential outside the investee's GHG inventory offered by the investment
- 2 Competitive advantage & strategic positioning**
 - The extent to which investees are committed to contributing to a net-zero economy and equipped to lead the transformation
- 3 Mitigating regulatory & business-related risks**
 - Anticipating regulatory changes by including AE in regular reporting as well as business-related risks

1 *Decarbonization potential*

→ Avoided emissions can serve as a measurable and concrete metric for evaluating a company's potential to contribute to other actors' decarbonization through the sale and implementation of their solutions. In the context of financial institutions, this adds another dimension to portfolio and sector assessments as the ambition to increase financing of avoided emissions solutions can complement the – relatively established – goal to assess and reduce absolute or financed emissions (including use-phase emissions). Avoided emissions allow financial institutions to perform a comparative analysis and benchmark (future) emissions reductions outside an investee's scope 1-3 emissions across sectors. This can help to assess the "future readiness" of invested assets and finance portfolios compared to peers both in terms of growth opportunities (see next point) and mitigation of transition risks.

2 *Competitive advantage & strategic positioning*

→ As many organizations do not measure avoided emissions, their assessment is a proactive measure showcasing a company's efforts to reduce other actors' GHG emissions and commitment to a net-zero emissions future. Investors can capitalize on firms that actively

contribute to broader decarbonization efforts. Calculating avoided emissions helps GPs identify firms that are going the extra mile and placing themselves in a competitive technological advantage for capital allocation. Investors can refer to avoided emissions as a key metric to assess the delivered results against the theory of change devised at the onset of the investment. While companies must not compensate for avoided emissions and inventory emissions but report them separately, a comparison of the two in deal and portfolio analytics can deliver meaningful insights to understand progress in transformation journeys, especially in high-emitting sectors.

3 *Mitigating regulatory & business-related risks*

→ In a rapidly evolving regulatory landscape, avoided emissions – complementary to robust and separate inventory disclosure – can exhibit a firm's willingness to push for greater accountability and adaptability to anticipated regulatory changes. Firms that invest in climate-focused solutions and voluntarily disclose the climate impact of these investments signal accountability and good will to financial institutions and consumers – only when they do not overstate impacts and transparently report them.



2.1.2 Avoided emissions as an important metric for engagement

Active engagement with investees becomes a crucial tactic for financial institutions during the management phase. PEs and VCs actively guide companies in their strategy and operations.

During this phase, investors can request emissions assessments, including avoided emissions, climate targets and transition plans from companies.

Using collective insights from these assessments, investors can actively direct and stimulate the creation of decarbonization initiatives.

The use of avoided emissions or (forward-looking) intervention-based measures can help hold portfolio companies accountable to value creation initiatives that involve decarbonization levers and perhaps may even see their incorporation in remuneration and incentives to further increase accountability.

GPs typically report detailed commercial and financial data to their fund LPs with some disclosing impact reports that include avoided emissions estimates. A 2022 author review of 28 publicly available GP impact reports from North America and Europe reveals significant variances in avoided emissions calculations. This includes a 15-fold difference between reported avoided emissions for the same company, a solutions provider of energy intelligence software. For the same period, the VC investor reporting on an adjusted basis claimed a significantly larger impact than the one reporting on a non-adjusted basis. Such deviations show the lack of standardization in measuring and disclosing avoided emissions.

The use case below illustrates how LPs can govern climate-related reporting in the private markets. While these communication practices may not be part of the common communication between LPs and GPs, they can serve as a basis for best practice to improve the quality of reporting.

In the exit phase, companies could integrate avoided emissions into the valuation calculation and use it as leverage to support strategic decisions, such as part of the expected value of a company or as a multiplier attributed to decarbonization potential when the company can realize the exit of a (non-fossil) high-emitting asset earlier than anticipated.

The current lack of a standardized avoided emissions methodology should not deter PE and VC efforts to measure and disclose avoided emissions, as the global financial and business community is advancing on a harmonization of assessment approaches and disclosure. In general, transparency, conservative assumptions and accountability should guide avoided emissions assessments and disclosure.



PE/VC use case 1 – LPs improving robustness and transparency in Avoided Emissions reporting

Overview

LPs (= asset owners who invest in private equity and venture capital products) can play an important role in improving levels of transparency and standardization in AE reporting. This can include asking the right questions to GPs during the management phase.

Example of questions to ask

Solution assessment & methodology

- What “business as usual” reference case has the company compared the solution to and in which markets?
- How does the solution or type of business deliver avoided emissions impact? Which actors in the business ecosystem benefit from the solution and at what point does the impact occur?
- For annual reporting period:
 - Are you reporting the annualized impact or the lifetime impact of the solutions sold in the reporting year?
 - Are you reporting the impact of total assets held by the company in that year or only the new assets added in that year?
- Is the claimed impact directly attributable to the investee company? Is the avoided emissions impact attributed to any other party in the ecosystem who plays a part in its delivery?
- Does the company have other positive or negative environmental impacts, such as on water, soil, biodiversity?

Impact management practices

- Does the investment manager transparently describe and document its methodology for measuring and reporting impact?
- Are your reported figures on investee and portfolio level ownership-adjusted (for a GP’s stake in the business) or reported as the impact of the investee company as a whole?
- Has the investment manager dedicated resources, tools and knowledge to develop and execute their impact measurement and management methodology?
- Are third-party experts employed to audit the investment manager’s impact methodology, implementation and reporting?
- Is there a clear, structured process for the investment manager to engage and help portfolio companies center impact during hold periods?

Financial implication

By asking these questions during the screening and due diligence phases, LPs influence the quality of fund reporting, therefore making it easier to compare AE between projects and choosing the one with the highest impact and the most detailed and transparent methodology of AE calculation.

PE/VC use case 2 – avoided emissions use by climate-led asset managers

Overview

Planet A, Just Climate, and Prime Coalition are examples of impact-driven financial institutions focused on climate solutions that reduce/remove emissions in the next decade. Planet A and Just Climate invest in companies that create ecological innovation for their business units and quantify the life-cycle assessment-based impact in-house.

Climate solution focused

Prime Coalition has convened Project Frame where investors and entrepreneurs work on the evaluation and reporting of forward-looking GHG impact. Through Project Frame's Investor Profiles impact-led investors articulate their impact strategies in a consistent structure and adhere to a set of common objectives following their values of integrity and transparency. Planet A is one of the venture capital investors that is part of Project Frame's investor profiles.

Planet A asks portfolio companies to adopt a climate policy within 12 months (measure CO₂ emissions, set targets for net-zero emissions). During their screening/due diligence investment phase, they test and recalculate the life-cycle assessment hypothesis of the company with their in-house impact assessment model. During the management phase, Planet A sets and tracks impact key performance indicators (KPIs). During the exit phase, Planet A benchmarks impact results against their targets.

Financial implication

As these asset managers specialize in climate solutions, avoided emissions is one of the most important metrics they measure. They look at the avoided emissions of a solution in the next 10 years for removal from the atmosphere vs the reference scenario. The reference scenario is based on analysis of the current and projected performance benchmarks and expected trends.



2.2 Public equity and bonds

→ Public equity and bonds represent the investment in a publicly listed company. Public equity is an ownership in a traded company while a bond is a tradable form of debt financing. When traded in regulated markets, public equity and bonds are more accessible for investors and more liquid than private equity.

Established public companies whose shares are traded publicly are important actors in decarbonization efforts. They often hold strong negotiation power within their business networks. Environmental, social and governance (ESG) regulation in the EU, US or Asia often addresses them first and the wider public often closely observes their climate commitments. When working towards portfolio decarbonization, investors in publicly listed companies will analyze firms on different levels, such as (i) their climate impact (scope 1, 2 and 3 emissions), (ii) their climate targets and transition plans, (iii) their current and planned actions to reduce, avoid or remove their inventory emissions, and (iv) the potential emissions that the firm can help others save through their solutions (= avoided emissions).⁹

Currently, the most influential stages in public equity investment are the screening and due diligence phases, given the limited engagement potential due to the oftentimes limited share of capital detained by individual investors.

2.2.1 Consideration of avoided emissions starts during screening and due diligence

In the screening and due diligence phase, financial institutions seek assurance that investees transform their business models to be competitive in a net-zero emissions future. Generally, avoided emissions methodologies are limited in public equity because investors tend to consider companies holistically instead of in terms of specific climate solutions or projects.

However, since public companies increasingly need to demonstrate decarbonization efforts and value creation for the common good, avoided emissions assessments come to the fore to complement emission reduction efforts. To be able to integrate this information in investment processes, financial institutions need companies to be transparent about: (i) calculation methodology and data sources, (ii) reference scenarios and (iii) percentage of avoided emissions in relation to company scale.

2.2.2 A metric to discuss growth opportunities in the engagement phase

The degree of financial institutions' impact on the scaling up of climate solutions links to their influence over issuers and the nature of financing. Public equity financial institutions are well-positioned to foster dialogue with investees, such as to request annual or bi-annual meetings on ESG. These dialogues may encompass discussions on climate-related topics, including avoided emissions.

The asset manager Nomura Asset Management revised its ESG scoring methodology of Japanese corporations in 2022 to integrate avoided emissions. It stresses the importance of transparent and detailed avoided emissions reporting to investees and encourages avoided emissions disclosure during the engagement phase. Enhanced reporting on avoided emissions is a valuable input for financial institutions when considering the growth opportunities of companies and long-term sustainability of their investment.

Generally speaking, other reporting practices during the engagement phase can include detailed presentations on the tangible outcomes of decarbonization initiatives, information on baseline scenarios for impact assessment, third-party verification, compliance with claim eligibility criteria (see WBCSD's Avoided Emissions Guidance and 3.1) and standards or frameworks followed.

Public equity use case 1 – Avoided emissions use in large corporations' decarbonization efforts

Industry overview

Renewable energy solutions.

Climate solution – Energy-efficient offshore solutions

Efficient offshore wind energy solutions are an important solution to provide a resilient and decarbonized energy supply. They require a shift in offshore operations to the use of floating structures and sub-sea power systems. By developing and providing such innovations, companies can contribute to the energy sector's decarbonization by enabling the expansion of renewable energy sources and increasing energy efficiency. Concretely, offshore wind farms can lower scope 2 emissions for electricity consumers and may lower scope 1 emissions for energy producers, particularly by replacing older, fossil fuel-based generating techniques. The GHG inventories of offshore solution providers do not necessarily capture these reductions. From an avoided emissions perspective, these reductions are assessable and quantifiable.

Financial implication

Screening phase

- Offshore renewable energy sources create electricity with considerably lower GHG emissions compared to fossil energy sources. Also, offshore wind farms can capture stronger and more steady winds than their onshore counterparts, which can lead to increased energy yields and improved efficiency.
- From a public equity perspective, avoided emissions can bring visibility on two aspects that highlight the company's competitive and strategic positioning: (i) avoided emissions shows the climate benefits of the technology in the real economy (such as shifting the local energy mix) and (ii) where several peers are calculating their avoided emissions, it shows at which level the climate solution adopted is technologically advanced and efficient (such as comparing offshore and onshore renewable energy production).

- In this case the company has implemented an internal carbon pricing model to encourage the reduction of CO₂ emissions. This methodology places a monetary value on the reductions in CO₂ emissions brought about by investments in energy efficiency and decarbonization machinery. By encouraging low-carbon investments, anticipating potential regulatory and business-related risks and transparently reporting avoided emissions and providing accountability measures, this solution may improve the company's investment profile and attract sustainability-oriented public equity investors.

Management phase and engagement

- Financial institutions can take advantage of their influence to use avoided emissions as a basis for discussion during the engagement phase, such as at annual meetings, and accompany corporations in their net-zero emissions strategy. They can do this by:
 - Ensuring the correct assessment and disclosure of avoided emissions, such as ask for activity data to prove impact where it occurs, information on traceability, system boundaries and functional unit of the assessment, conservative reference scenario modelling, third-party verification and standards followed;
 - Pushing the conversation further to assess how the company can use avoided emissions to advocate for the development of climate solution technologies and a wider systemic transformation to low-carbon energy.

2.3 Sustainability-linked loans

→ Sustainability-linked loans provide incentives for achieving pre-determined sustainability performance targets. They provide funding for use with any company objective and are not exclusively earmarked for sustainability-related purposes. With sustainability-linked loans, the borrower receives a lower interest rate if they meet sustainability performance targets, which may connect to decarbonization and could – given a transparent and consistent methodological approach – also link to avoided emissions.

Incorporating loan terms related to decarbonization could be a significant lever for financial institutions in private credit. There are several different ways lenders can operationalize this, such as stipulating the disclosure of emissions data to lenders or mandating a decrease in company or customer/systems emissions throughout the loan term following a pre-defined methodology. During the loan term, the lenders may collect information to understand the evolution of avoided emissions (activity data, sales figures, updates of the baseline scenario, internet of things (IoT), use-phase data, etc.)

2.3.1. Corporate climate action linked to flexible financial loan terms

The concept of using financial instruments as incentives for corporate climate action is the foundation of the integration of avoided emissions in sustainability-linked loans. Typically, borrowers choose two or three quantitative sustainability KPIs and decide on corresponding future milestones to meet. KPIs should have a defined timeline and should be quantifiable and third-party verifiable based on a credible methodology. While avoided emissions may be one of the KPIs of the loan terms, lenders also use other historical and recent data (such as from annual and project reports) to track progress. There is a risk that

lenders or borrowers may take advantage of the flexibility of sustainability-linked loans and make superficial or overstated claims. Therefore, the Loan Market Association (LMA) is advocating for a mandatory external verification of KPI performance to mitigate the risk of greenwashing.

2.3.2. Avoided emissions as an indicator in select projects with high decarbonization potential

From the perspective of financial institutions in private credit, avoided emissions can serve as an indicator for selecting projects with high decarbonization potential. We encourage investors to recognize and emphasize the long-term benefits of funding such initiatives, both in terms of resilience and financial sustainability. The integration of avoided emissions metrics enables financial institutions to identify projects that provide a competitive edge in markets increasingly attuned to carbon emissions awareness. But markets on the rear end of sustainability transformation can also benefit from avoided emissions perspectives in loan structuring as avoided emissions assessments are strongly dependent on the implementation context. For instance, the solutions discussed in the sustainability-linked loan use case above can have very different decarbonization potentials depending on the market where they are applied (recycling technology maturity, community recycling rates and waste material mixes may strongly differ). So, comparing avoided emissions on a loan-by-loan level and adjusting avoided emissions KPIs accordingly can help to optimize investment and portfolio strategies in terms of overall decarbonization potential – especially, when considering the historic climate performance of an investee as well. This would introduce a new perspective on climate action where companies seek impact opportunities in addition to risk mitigation. Investors can also gain from the favorable market positioning and value creation (as seen in section 2.1a) that come with environmentally conscious efforts.

Sustainability-linked loans use case 1 – Avoided emissions in end-of-life solutions informing financial terms

Industry overview

Large-scale ecologically transformative solutions such as water and waste processing/ collection and treatment and waste-to-energy production.

Climate solutions - Plastics recycling

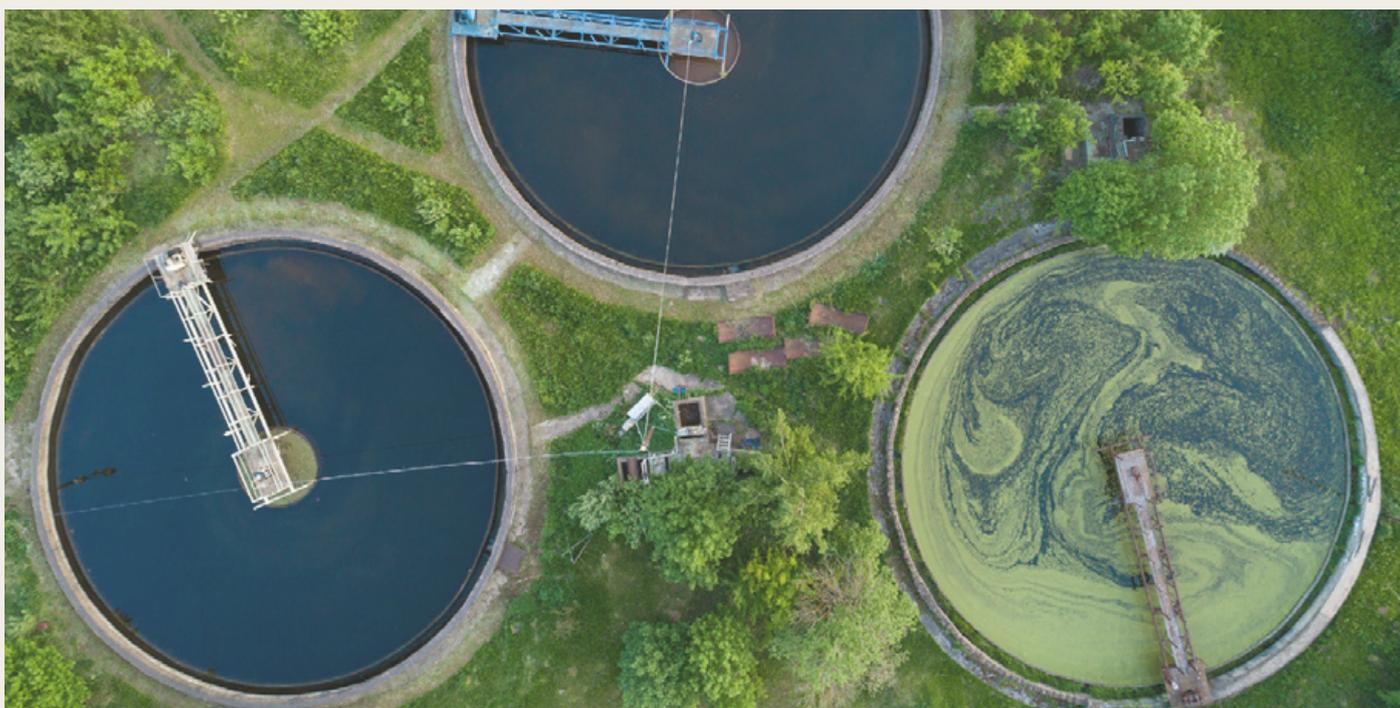
There are several types of use cases in the end-of-life industry where avoided emissions may apply:

- The treatment of one metric ton of plastic waste by incineration (reference) compared to recycling (solution), noting that it's an output from the user to industrials.
- Replacing the purchase of virgin material with recycled material, noting that this represents an input to industrials. This solution is assuming a new demand situation, i.e., the reference scenario is based on available virgin solution on the market fulfilling the same functions.
- Producing waste-based fuels and comparing the avoided gases to a scenario where the company would have landfilled the waste.

Financial implication

Efficient recycling, upcycling and waste-to-energy solutions can be an interesting case for financial institutions and companies from an avoided emissions perspective especially, in the case of sustainability-linked loans, as:

- Financial institutions are aware that businesses that develop efficient recycling processes have increased resilience to environmental hazards, such as possible disruptions in the supply chain;
- Avoided emissions calculations on recycling solutions help financial institutions compare and select projects with potentially higher decarbonization potential among waste projects;
- The data availability for avoided emissions assessments is likely improving due to increasing and more demanding extended producer responsibility laws and other circular economy-related policies;
- Key assumptions of the assessment (and related KPIs) are easier to monitor and validate compared to upstream solutions where the emissions reduction effect is more indirect.



2.4 Green bonds and project finance

- Green bonds are a specific fixed income instrument designed to support specific climate-related or environmental projects. According to the Climate Bonds Initiative, green bonds have recorded a cumulative issuance of US \$4.2 trillion in 2023 compared to US \$1.5 trillion in 2022.
- Project finance is an asset class that includes all on-balance sheet loans or equities to a defined activity or set of activities, such as the construction and operation of a wind or solar project or energy efficiency projects.¹⁰

Green bonds and project finance are the most mature asset classes in the context of avoided emissions because the attribution of avoided emissions is directly observable in the project's use of proceeds as the company clearly specifies the activities for which it uses the financing and intervention-based approaches to ESG accounting have a longer history in project-related methodologies. Therefore, investors and companies alike could further use avoided emissions in the context of transition bonds, which focus on companies aspiring to reduce their GHG emissions. The Japanese government recently issued the first-ever sovereign climate transition bond linking use-of-proceeds criteria to avoided emissions methodologies and solutions.

2.4.1 Implementation context as a decisive factor in avoided emissions assessments

The Green Bond voluntary framework developed by the International Capital Market Association's (ICMA) requires market participants to develop and communicate on their own green bond standards, defining project eligibility criteria and reporting indicators and use of proceeds. Green bonds are usually used to finance green infrastructure (such as renewable energy, green transport and green buildings).

Information on the avoided emissions intensity from green bond-financed projects could help financial institutions improve the decarbonization yield of their green bond strategies. In the case of green bonds, we see that asset managers and corporations (such as Credit Agricole, Amundi or Orsted) are dedicating specific reports to disclose avoided emissions linked to green bond-financed projects.

In the context of a green bond, financial institutions monitor the impact generated with annual avoided emissions at portfolio level and EUR invested (for example, following the European Investment Bank's project carbon footprint methodology). Post-issuance, the Green Bond Principles require a verification of capital allocation by a third-party auditor as stipulated in the ICMA voluntary guidance.¹¹



Green bond use case 1 – Issuance of green bond by multinationals and conglomerates

Overview

Philips is a world leader in healthcare technologies. The company is committed to being more sustainable through its innovation, products and services, energy consumption and supply chains. Ahold Delhaize is one of the world's largest retail and wholesale holding companies.

Climate solutions focused

Both companies have recently issued their inaugural green bonds and established a framework and verification process dedicated to green proceeds. The framework defines the strategy deployed, use of proceeds, impact KPIs, low-carbon product launches and the expected outcome achieved by the proceeds and reporting practices. The green financing facilities aim to apply raised funds to green capital expenditures, research and development and operational uses.

Financial implication

The frameworks provide financial institutions with a detailed description of the type of projects financed, the expected KPIs achieved and its progress and the application of proceeds of the projects, which increases transparency. Avoided emissions is one metric that the framework adopts to monitor and measure the production and use of green products. As the methodologies, such as for baselining, are not made transparent in the green finance frameworks, it is not possible to test alignment with existing AE frameworks. Both Philips and Ahold Delhaize will provide third-party assurance for their assessment models.



Green bond use case 2 – Investors to highlight the difference in type and geographies of avoided emissions invested in a green bond

Overview

This use case is based on Credit Agricole S.A.'s green bonds report and S&P's Trucost green bond database to highlight that the amount of avoided emissions invested in green bonds can vary by type and geography.

Avoided emissions by type of green projects

Estimates show that more than 1,000 metric tons of CO₂eq are avoidable for every US\$1 million invested in renewable electricity and heat production projects, while more than 600 metric tons of CO₂eq are avoidable for every US\$1 million invested in green transportation projects.

The table below provides a practical example taken from Credit Agricole S.A.'s green bond report disclosing avoided emissions by type of project.¹²

Financial implication

From this table, a financial institution can deduce that avoided emissions intensity is higher for renewable energy projects than for other green categories; this could be due to the geography or other context-specific factors of the projects. For instance, a renewable energy project in a country with a high-emitting/fossil-based energy network generates more avoided emissions than a project in a country with a relatively clean energy mix. As the same type of project based in different locations could produce varying potential avoided emissions, financial institutions should seek further information about these projects and the respective markets to understand the scale of impact. Furthermore, this shows that the implementation context can become a relevant decision factor when searching for and investing in climate solutions or climate solution providers.

Table 1: Credit Agricole's green bond report disclosing avoided emissions by project type¹³

Eligible green category	Allocation (€ million)	CO ₂ emissions avoided intensity (tCO ₂ e/ (€ million /y)	CO ₂ emissions avoided (tCO ₂ e/y)
Renewable energy	1,016	1,093	1,110,689
Green building	716	37	26,577
Clean transportation	204	380	77,654
Energy efficiency	40	256	10,262
Water & waste management	24	200	4,764
TOTAL	2,000	615	1,229,946

2.4.2 Avoided emissions as complementary metric to absolute/generated emissions

After the issuance of a green bond, financial institutions are obliged to track impact KPIs. In case of controversy or if the investee does not meet expected impacts, we encourage financial institutions to engage a dialogue and evaluate the corrective actions that the issuers could put in place. Financial institutions can update their assessment and lower the issuance's score if their expectations as responsible investors are not satisfied. As a last resort, financial institutions may sell off the bonds in the portfolios.

Green bond use case 3 – Controversial avoided emissions reporting by a bank

Overview

Avoided emissions claims based on a mining use case.

Controversy: Reporting on avoided emissions and financing harmful activities

A bank found itself subject to controversies after having received a certification for its green bond program focused on renewable energy infrastructure, while also financing one of the largest mining projects in the world. The bank had reported roughly 2mn metric tons (mt) CO₂eq of avoided emissions through its green bond program, while it also financed a project that could generate 30mn CO₂eq of absolute emissions. As part of their engagement strategy, investors who contributed to the green bond contacted the bank and brought up the misleading communication about avoided emissions claims on the one side and generated emissions on the other side.¹⁴

Financial implication

This example supports the fact that companies and financial institutions should communicate avoided emissions together with a consistent global climate strategy, alongside but separate from absolute

inventory emissions and that they should assess and disclose rebound and side effects of avoided emissions claims to minimize environmental risk, ensure credibility and mitigate greenwashing (such as soil quality, water toxicity, pollution, biodiversity loss). The investment team decided to liquidate the position because they felt that the engagement initiative they took did not result in a satisfactory outcome.

Several reasons may be the drivers behind the investors' criticism: (i) the reputational risk that investors face when being associated with a bank that may "greenwash" its portfolio's ESG impact, (ii) lack of transparency, which made it hard for investors to assess the full environmental and social impact of their investments, (iii) investors may have perceived the bank's financing of mining activities as incompatible with their responsible investment objectives and principles.

Advancements in (sector-specific, long-term) guardrails, systemic approaches to decarbonization solutions in high-emitting sectors, and "do-no-harm" criteria beyond dominant site-based approaches are necessary to allow for the co-existence of mining activities on the one hand and low-carbon and conservation agendas on the other hand. This would allow financing actors to understand and report the holistic impact

In-depth case study: *calculating and reporting financed avoided emissions*



03.

03. In-depth case study: *calculating and reporting financed avoided emissions*

3.1 General guardrails for avoided emissions assessments

Financiers should consider both low- and high-emitting sectors when financing the net-zero transformation. The replacement/substitution of high-emitting assets can be a cornerstone of avoided emissions assessments as they often serve as reference scenarios when identifying market-solution mixes with highest decarbonization potential (such as internal combustion engine as reference for mobility solutions, fossil-heavy grid mixes as reference for energy solutions). However, according to the WBCSD's *Avoided Emissions Guidance*, avoided emissions claims should exclude solutions directly applied to fossil fuel-related activities (exploration, extraction, mining and production, distribution, and sales) to avoid a lock-in and extension of high-emitting assets. Also, in the GFANZ Secretariat Technical Review Note on Decarbonization Contribution Methodologies, fossil fuel and high-emitting assets (subject to managed phaseout) are treated separately from climate solutions and entities that are aligned/aligning towards net zero.¹⁵ This emphasizes the opportunity-led and transformative character of avoided emissions as the concept aims to assess and incentivize the scaling of low-carbon solutions and therefore complements – but does not replace – the necessary incentives to accelerate the phase out of high-emitting assets.

The WBCSD *Guidance on Avoided Emissions* provides guidelines for eligibility and the calculation of avoided emissions claims for companies. To ensure avoided emissions claims are credible, the guidance introduces three eligibility gates that portfolio companies should meet. Financial institutions should check company compliance with these eligibility criteria when disclosing avoided emissions of portfolio companies and assessing capital allocation to avoided emissions solutions. Eligibility Gate 1 states that the portfolio company must have public, reduction-related KPIs, third-party reviewed science-based targets, a net-zero emissions transition plan, and public GHG inventory reporting. Gate 2 requires the climate solution to have mitigation potential as per the latest climate science. Gate 3 requires that the specific solution have a direct and significant contribution to the decarbonization impact. These criteria are largely in line with the GFANZ principles-based attributes mentioning the entity (aligned/aligning) and solution level.

Financial institutions that want to make the avoided emissions claim through their investment should therefore ensure that companies adhere to such guidance when considering avoided emissions in their investment process and that they share the measurement with them:

- 1 Identify the assessment timeline:** Define a specific timeline for the assessment. This can be either a forward-looking assessment or follow a year-on-year approach.
- 2 Define the reference scenario:** The reference scenario depends largely on the context of sales, as it is contingent on the use of the solutions and the alternative scenarios the company would have chosen instead according to regulatory requirements, specific alternatives and current market standards. 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. Regulation and industry alignment play a crucial role in setting requirements for the reference scenario definition to allow comparability across different geographies and minimize the risk of greenwashing.
- 3 Evaluate the solution and reference life-cycle emissions:** Portfolio companies should provide a description of the full life-cycle GHG emissions (emissions from sourcing, production, distribution, use and disposal phases) associated with the solution and the reference scenarios as a base for the avoided emissions assessment.
- 4 Assess a solution's avoided emissions:** Establish this by calculating the difference in emissions of a reference activity with and without the solution used, taking into consideration the solution's entire life cycle.
- 5 Assess avoided emissions at the company scale:** Companies may assess their total avoided emissions by aggregating the avoided emissions of all solutions assessed.

Financial institutions that include avoided emissions in their GHG assessments should report them distinctly from (i) absolute or financed emissions, (ii) carbon sinks and removals and (iii) reduction claims on fossil fuel-assets (managed phaseout), and (iv) carbon credits. It is crucial to emphasize that they should not use avoided emissions to claim carbon neutrality. In addition, they should publicly disclose any unfavorable side effects of the solutions discovered in terms of environmental trade-offs and sustainability objectives, beyond their greenhouse gas impact. Financial institutions should also request their portfolio companies to outline the measures taken to mitigate such effects. The company should flag any identified rebound effects and articulate potential strategies to mitigate them. The company and financial institution should explicitly state whether a third party has independently verified the impact of avoided emissions and the key assumptions used for the assessment. To ensure traceability and accountability, we recommend indicating the sectors or companies decarbonized through the avoided emissions solutions, which GHG scopes/categories in their respective GHG inventories are reduced, and which data can prove the claim. High levels of transparency on these aspects of the assessment will allow financial institutions to better monitor the achieved emissions reductions, especially in ex-ante assessments.

The Partnership for Carbon Accounting Financials (PCAF) has developed an avoided emissions guidance for project finance but has yet to develop guidance for other asset classes and expected avoided emissions for which a Working Group has been established in 2024. In the meantime, the general approach for carbon accounting among financial institutions is using the attribution approach based on exposure to the investment or loan.

The next sub-section defines financed avoided emissions and provides a step-by-step guide on aggregating avoided emissions at the portfolio level of financial institutions.

3.2 Calculation and aggregation of financed avoided emissions - Practical use case

To calculate financed avoided emissions, financial institutions assess the aggregated avoided emissions of their 'green investments' (in climate solutions) across the entire portfolio following an attribution approach based on exposure to the investment or loan (see the use case below). In cases of disclosure of commercially sensitive information through an ownership-adjusted financed avoided emissions claim, the reporting entity may report it on a non-ownership basis, which it should clearly indicate along with the claim.

Beyond the 5-step approach outlined above, we add 3 practical steps to the calculation of avoided emissions that are necessary when adopting a financial institution's perspective. These steps may vary depending on the type of asset class and are meant as a guiding framework next to the approaches discussed in Section 2. The 3 steps as part of the financial institution analysis include:

- 6 Calculate avoided emissions claim for financial institution;
- 7 Aggregate avoided emissions (at portfolio level) and communicate;
- 8 Update avoided emissions reporting following a portfolio exit.

The GFANZ and PCAF methodologies for impact allocation and degree of association are applicable in this context but require further work on details, non-project assets and implications of attribution approaches.¹⁶ As highlighted in the PCAF Standard a central tenet for GHG accounting of financial assets is the "follow the money" principle. For Financed Avoided Emission reporting this means that a clear 'known use of proceeds' would be required for specific financial instruments (as described in this paper) that can be associated with avoided emissions.

In-depth use case – Avoided Emissions as a metric to measure low-carbon innovation in the animal feed industry

Industry overview

Large corporations that provide low-carbon animal feed or plant-based protein solutions to reduce farmers' and retailers' GHG footprints.

Climate solution developed: Low-carbon cow feed

The solution is a corn seed that increases feed efficiency in beef and dairy cattle. It leads to reduction of emissions due to upstream efficiency increases in crop production and higher feed efficiency on the farmer level. The feed additive increases milk or meat yield on a per animal basis. Key beneficiaries of this solution are livestock and dairy producers who can improve their carbon intensity (scope 1 from owned/controlled operations). In the case of plant-based proteins, food producers and retailers could improve their scope 3 (purchased goods).

Calculation of AE for a low-carbon animal feed

1 **Timeline:** year-on-year.

2 **Reference scenario:** Non-modified animal feed; operating emissions of one functional unit generates the kg CO₂eq/ per unit of beef or milk.

3 **Solution and reference life-cycle emissions:** The reference scenario is a conventional corn used in animal feed. The life-cycle emissions include all activities from the production of the grain including inputs, land use and water use. Production in the solution scenario has similar emissions to a conventional grain but the benefit is gained within the farm-gate (i.e., the net value of the product when it leaves the farm) when less grain is needed to meet the same production level. The assessment scope is the US market on year-on-year basis.

4 **Solutions' avoided emissions:**

- Beef production: net avoided emissions: -200 Kg CO₂eq per livestock (per year)
- Dairy production: net avoided emissions: -1300 Kg CO₂eq/cow/year

5 **Consolidated avoided emissions for solution (not at company scale):**
~2 million metric tons of CO₂eq in 2022.

Investor analysis

6 **Calculation of avoided emissions claim for financial institution:** From an investment point of view, if an asset manager holds 20% of all equity and debt in this company (Enterprise Value including Cash in case of a listed company) developing only low-carbon cow feed, they would be able to claim 400,000 metric tons of avoided emissions (20% * 2 million metric tons of CO₂ avoided). This metric can be described as financed avoided emissions. In project finance, financial institutions could provide justification via use of proceeds. However, in the case of corporate finance, avoided emissions claims will need to be further justified with fund allocation to the respective project or production line, or a business plan/climate roadmap attesting the future development of such projects that includes impact and activity data KPIs.

7 **Aggregation and communication:** In this case, the asset manager can communicate avoided emissions as a separate impact metric but avoided emissions are not usable for any net-zero emissions claims or to offset any (generated) financed emissions. Investors claiming avoided emissions must report them separately from scope 1, 2 and 3 portfolio emissions and provide methodological explanations (see section 1.3).

In this use case, financial institutions should (i) communicate their total amount of (generated) financed emissions of the portfolio, and (ii) consolidate the 400,000 metric tons of AE with other investees' ownership-adjusted, annualized AE. As explained previously, the timeframe of the assessment could also be the entire lifetime of an asset (instead of year-on-year) starting from the year of sale. In such cases, the AE of different solutions sold in the same year could be aggregated on a forward-looking basis. Regardless of the timeframe, the financial institutions should not consolidate AE claims with reduction claims generated through investments in fossil fuel solutions (managed phaseout) but keep such metrics separate. We highly recommend third-party verification of AE to increase reliability of AE calculation from a financial institution standpoint.

8

Exit phase: Companies might use avoided emissions to increase the value of the company ("climate goodwill"). To avoid double counting, the financial institution should not report avoided emissions once it has exited the portfolio company.



Challenges of the avoided *emissions concept*



04.

04. Challenges of the avoided emissions concept

As implied in previous sections, financial institutions should be mindful of challenges and limitations when considering avoided emissions as a metric for decarbonization:

→ **Nascent standards & reporting landscape:**

Currently, there is a lack of standardized methodologies for corporate-level avoided emissions calculations and disclosure. Furthermore, avoided emissions allow double counting of impacts (such as different contributors to the same avoided emissions solutions and reductions in reporting company's use phase emissions overlapping with avoided emissions claim). As clear mechanisms to avoid double counting are not (yet) established, financial institutions should be careful when assessing overall avoided emissions impact and companies should be transparent in terms of eligibility criteria, systems boundaries, and their solutions' contributions to the avoided emissions impact (see 5). Furthermore, rules and mechanisms for verification are required to create accountability for reporting organizations' (financed) Avoided Emissions claims, especially because the claimed impact occurs outside of their organizational boundaries and may require (retrospective) adjustment if underlying assumptions do not materialize.

→ **Data availability, consistency, and quality:**

Avoided emissions estimates are speculative in nature since they compare a factual scenario with a hypothetical scenario and are often predictive rather than descriptive. Data challenges are particularly prevalent in terms of commercial sensitivity, accountability, traceability, and impact measurement (such as confirming use phase assumptions) and in establishing reliable baselines/reference scenarios. High variability across regions adds complexity to the evaluation process.

The calculation process – and particularly criteria and data rules for baselines and accountability – need enhancement and harmonization to allow for meaningful use of avoided emissions data. Several financial institutions and asset managers develop avoided emissions frameworks and estimate avoided emissions factors data through macro analysis and scientific exercises, such as Schroders and Mirova/Robeco. Similar efforts are available at NGOs and investment funds such as Project Drawdown and Prime Coalition.¹⁷ While these efforts create indicative insight, they require validation and advancement with impact data and baseline approaches from industry practitioners to unfold the transformative potential of avoided emissions.

→ **Inventory reductions vs avoided emissions:**

Measuring avoided emissions should be complementary to the assessment and reporting of absolute GHG emissions in scopes 1-3. The current WBCSD Avoided Emissions Guidance excludes any form of compensation between scopes 1-3 and avoided emissions and introduces corporate eligibility criteria and high-level disclosure principles for avoided emissions claims.¹⁸ Companies that disclose avoided emissions allow financial institutions to analyze the relationship of avoided emissions compared to, for instance, the GHG inventory. While organizations should not use (financed) avoided emissions to compensate inventory emissions, such an analysis can provide insight for financial institutions into companies' wider ESG profiles, their innovation capacity and their net-zero emissions strategy. The reporting company should make transparent any overlaps of inventory reductions (such as in scope 3 use phase emissions) with avoided emissions claims through explicit and transparent disclosure of inventory boundaries. So, the claim should also include where the (expected) emissions reduction is occurring, such as by specifying the value chain partners and their respective GHG scopes addressed.

→ **Attributional challenges for enabling solutions:**

Although investing in these products could lead to a considerable decarbonization effect, the nature of enabling solutions presents attributional challenges. Solutions that enable other companies' decarbonization, such as efficient transport routing, supply chain transparency solutions, energy efficiency software, or specialty chemicals can be crucial for the transition to a low-carbon economy. In the context of avoided emissions, industry actors and financial institutions struggle to assess their contributions fairly and commonly because the impact is often not directly attributable and rebound effects are hardly traceable. The absence of a standardized methodology to assess the claim eligibility and quantify the impact of these solutions creates greenwashing risks. Impact disclosure should use selective and clear language and share complementary metrics such as key assumptions, systems boundaries, user profiles transparently.

→ **Consolidation/aggregation on entity level:**

Limitations in the use of avoided emissions arise in the context of financing of diversified companies and attribution of finance avoided emissions at the portfolio level of financial institutions. Current avoided emissions methodologies for companies and financial institutions alike still focus on project-level analysis and there is little standardization on how to aggregate and attribute avoided emissions beyond the "sum-of-its-parts" approach mentioned earlier or in different asset classes.

To address these challenges and limitations, asset managers could take some of the following steps:

- Clearly define the purpose of using avoided emissions in their portfolio and decision-making.
- Engage in the development of robust and transparent financial methodologies for avoided emissions assessment, aggregation and disclosure for financial institutions in alignment with corporate and policy efforts.
- Separately measure and report carbon footprints including financed emissions (scopes 1, 2 and 3) on an annual basis to provide a foundational understanding of the organization's overall impact on the environment.
- Disclose the revenue share of avoided emissions solutions of the invested company. This helps to qualify a company's product portfolio and transition efforts. It is necessary to carefully demonstrate avoided emissions in cases of corporate finance, capital allocation or future development of solutions.
- As per the PCAF Standard, we advise alignment with the precautionary principle: "If in doubt, err on the side of the planet not the side of the company."¹⁹ This implies that organizations should be conservative in assumptions, especially in cases of lack of data and proof. This also implies that the baseline should already include expected emission reductions that will take place regardless of the intervention (such as due to existing policies), to ensure the claiming of avoided emissions only if the intervention goes beyond.

Limitation of avoided emissions for enabling solutions

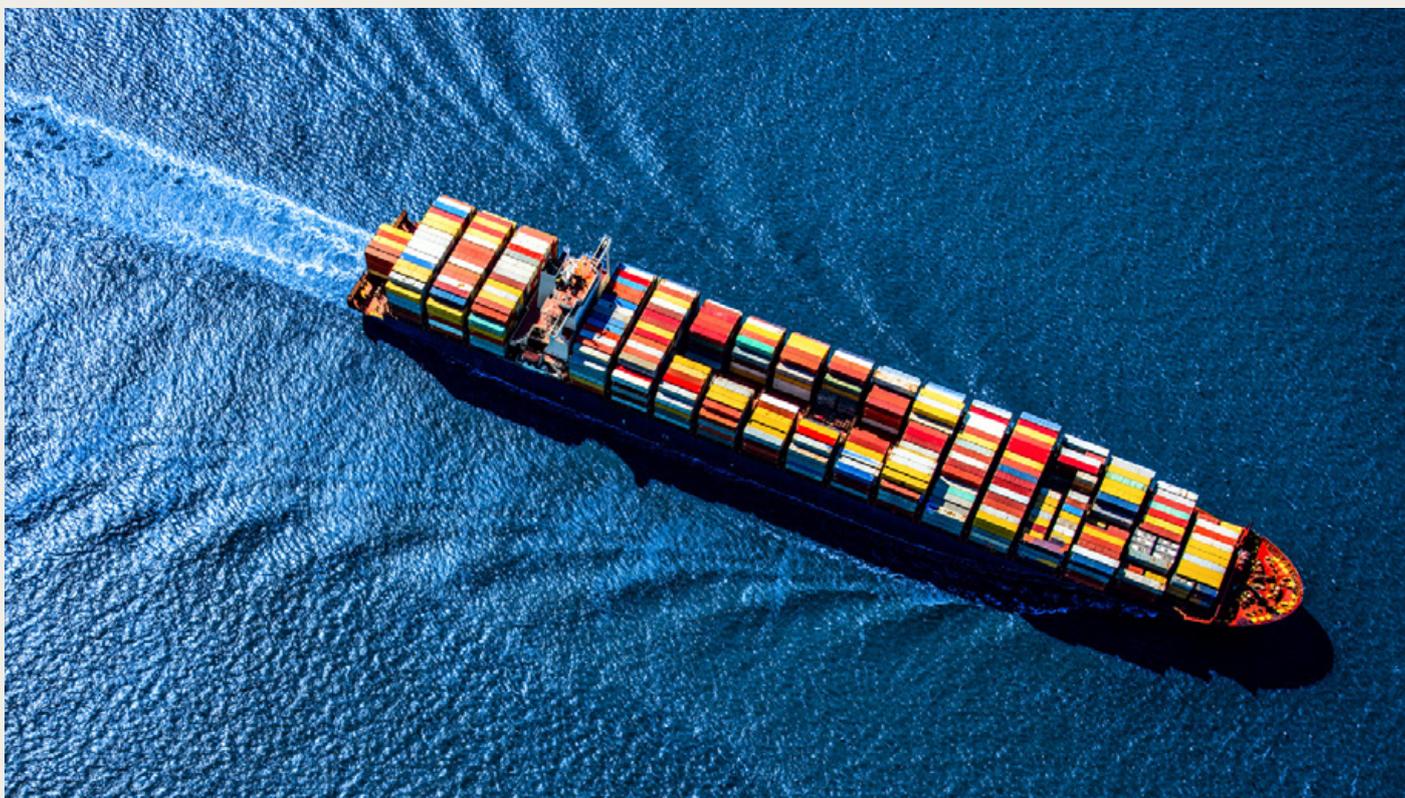
Supply chain transparency is critical in improving sustainability. Greater data availability ensures sustainable business practices and mitigation of negative environmental impact introduced from products.

Overview

Investor A invests in Solution A, a software company that enhances traceability of supply chain of fashion goods. The software allows any company to identify the provenance of products by tracing virgin and recycled material input, locations of the manufacturing process and distribution and transportation methods taken to deliver the products. Investor A plans to report on the impact of Solution A and considers avoided emissions as one of the KPIs.

Good practice

As the actual avoided emissions realized depends on the companies using Solution A, Solution A can hardly claim avoided emissions as the solution itself does not lead to traceable output changes (such as in contrast to the recycling process itself). Instead, it should use selective wording that precisely defines the impact and the limitations in its assessment. Investors may also consider other KPIs as an alternative to communicate the impact. These may include the percentage of recycled materials used, number of certified materials and any violations uncovered/ mitigated by the software. Such attributional challenges demonstrate that solutions that may be critical to accelerate sustainability transformations may not always directly contribute to avoided emissions but their systemic contribution becomes prevalent through other impact categories.



Avoided emissions in regulatory *and voluntary* landscape



05.

05. Avoided emissions in regulatory and voluntary landscape

Over the past five years, avoided emissions and the broader concept of transition finance have emerged in various regulatory frameworks and initiatives. In this section, we provide an overview of existing regulatory and standardization efforts in this regard. The focus lies on frameworks outside of the WBCSD Avoided Emissions Guidance, which guide the avoided emissions definition and application in the corporate and finance context throughout this paper.

5.1 Avoided emissions in finance

The Glasgow Financial Alliance for Net Zero (GFANZ) stresses in the voluntary guidance²⁰ that incorporating forward-looking metrics as a complementary consideration may more comprehensively capture the “value added” of climate solutions and the decarbonization potential of high-emitting assets. It includes climate solutions as a key transition finance strategy and points out avoided emissions as a potential decarbonization contribution methodology for climate solutions (see Section 1 for avoided emissions, EER, ERP reference).

In January 2024, the Partnership for Carbon Accounting Financials (PCAF) announced several new areas for standard development.²¹ One of these areas is ‘Transition and green finance’ for which a Working Group has been installed.

Project Frame is a private market industry initiative that provides guidance for estimating the future potential avoided emissions of a company. The guidance primarily focuses on creating a common approach to estimating the impact an investee company could have based on a project- and company-specific assessment (planned impact) and the impact such a solution could have more broadly in the market (potential impact). The guidance includes how to evaluate the relative impact of solutions on the basis that they captured a proportion of an estimated total addressable market size or serviceable market size.²²

The Climate Safe Lending Network (CSLN) published *The Good Transition Plan*,²³ which targets the financial sector to be an enabler of the net-zero transition of the economy. It is a practical, actionable guide for banks to create effective climate transition plans. CSLN stresses that among other concepts, companies cannot use avoided emissions to offset generated emissions. The Sustainable Markets Initiative (SMI) published a similar guide focused on net-zero strategies²⁴ for banks that includes considerations in setting a net-zero strategy with a focus on offsetting and carbon credits. Again, it mentions avoided emissions in the context of separate accounting from banks’ scope 1, 2 and 3 emissions. On the path to net-zero emissions, organizations can contribute to broader society’s net-zero emissions ambitions by compensating for some or all their emissions.

A growing number of GPs are adopting third-party assurance of their impact investment management systems and processes. The potential to include assurance of systems and processes used for avoided emissions reporting within the scope of this assurance has the potential to further drive transparency and consistency in the industry. Recent changes in European regulation related to climate finance will lead financial institutions to use forward-looking indicators such as avoided emissions. The EU Climate Benchmark Regulation incorporates GHG-related objectives into investment benchmarks to improve transparency and comparability and set minimum benchmarks for climate-aligned investments.

5.2 Avoided emissions in the industry

The Corporate Sustainability Reporting Directive (CSRD) as well as the solution-focused EU taxonomy are other regulatory advancements in the context of corporate disclosure. The CSRD requires companies to disclose their 1.5°C-aligned transition plans. Although avoided emissions shall not be included as a means of achieving GHG emission reduction (targets), they can be an additional measure to achieve this plan. More recently, European Regulation – ESRs²⁵ E1 Climate Change mentioned avoided emissions. In the US, the Securities and Exchange Commission (SEC) climate disclosure rules requires scope 1 and 2 carbon footprint disclosures on a phased-in basis but with optional coverage of scope 3 indirect GHG impacts. On a state level, California has introduced a baseline for fuel carbon intensity in its Clean Fuels Policy and connected this to a sector-specific credit and deficit system. In Asia, the regulatory environment is still relatively nascent and not regionally harmonized. In Japan, the Financial Services Agency (FSA) has created new regulations requiring the disclosure of sustainability-related information. Recently, also the Chinese Stock Exchanges announced ESG disclosure requirements to become effective in 2026.

The Carbon Disclosure Project (CDP) included a questionnaire²⁶ on low-carbon goods and services to provide valuable information to financial institutions who are seeking to invest in these products. Part of this questionnaire focuses on whether and how companies estimate avoided emissions of these low-carbon products or services. The GHG protocol requires reporting

avoided emissions separately from the GHG inventory and published a Project Accounting framework in 2005 for estimating and disclosing positive and negative GHG impacts of products and projects that include avoided emissions-related concepts (such as baselining).²⁷

Like the WBCSD *Avoided Emissions Guidance*, the Science Based Targets Initiative (SBTi) stresses in its *Corporate Manual* that companies must see avoided emissions as outside scope 1, 2 and 3 emissions and therefore report them separately. According to SBTi's *Corporate Manual*, a company should set and communicate a climate strategy consistent with the latest climate science, provide robust GHG footprint measurement that includes science-based targets for scopes 1, 2 and 3, and transparently report on progress on a regular basis before making avoided emissions claims. Also here, avoided emissions do not count towards near-term science-based emission reduction targets.²⁹ More recently, in February 2024, the SBTi released *Beyond Value Chain Mitigation*,²⁹ a guideline that establishes a framework to develop a strategy to abate emissions outside of a company's GHG footprint through emissions avoidance or removals. At the same time, this framework also serves as a guide for financial institutions to build a portfolio that focuses on GHG mitigation and disclose the scale of the impact. Thus, expectations are for avoided emissions to play a larger role as a key metric to quantifying mitigation outcomes as they become more relevant in a market where financial institutions increasingly support low-carbon solutions.

Endnotes

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- 6 The volume of GHG emissions emitted and financed by an institution is commonly referred to as its generated emissions. Partnership for Carbon Accounting Financials (PCAF) (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition.
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The World Business Council for Sustainable Development (WBCSD) is a global community of over 225 of the world's leading businesses driving systems transformation for a better world in which 9+ billion people can live well, within planetary boundaries, by mid-century. Together, we transform the systems we work in to limit the impact of the climate crisis, restore nature and tackle inequality.

We accelerate value chain transformation across key sectors and reshape the financial system to reward sustainable leadership and action through a lower cost of capital. Through the exchange of best practices, improving performance, accessing education, forming partnerships, and shaping the policy agenda, we drive progress in businesses and sharpen the accountability of their performance.

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