

A GFANZ Secretariat Technical Review Note

Scaling Transition Finance and Real-economy Decarbonization

Supplement to the 2022 Net-zero Transition Plans report

DECEMBER 2023



GFANZ

Glasgow Financial Alliance for Net Zero

Acknowledgements

This GFANZ Secretariat Technical Review Note (“Note”) further develops the Transition Finance strategies that the Glasgow Financial Alliance for Net Zero (GFANZ) work articulated in 2022 and outlines preliminary technical considerations on potential decarbonization contribution methodologies.

This Technical Review Note was drafted and developed solely by the GFANZ Secretariat, as a voluntary, non-binding tool and technical reference in support of financial institutions’ efforts to scale finance and engagement across the GFANZ four key transition financing strategies. The Note refines the Attributes of the GFANZ four key transition financing strategies and explores complementary, forward-looking measures to capture potential decarbonization contribution that serves as a starting point for additional discussion and consideration around such metrics.

The GFANZ Secretariat was informed by a review of other relevant frameworks developed by sector-specific alliances and leading initiatives in use by market participants, multiple GFANZ working groups, feedback received through open consultation, and interviews with experts and practitioners. The GFANZ Secretariat would like to thank all those who provided input during the open consultation period.

This does not imply that every finding included herein is endorsed by every party, sector-specific alliance, or sector-specific alliance participating firm, including the firms represented on the Principals Group. For the purpose of clarity, this Note has not been expressly endorsed by the global network of financial sector-specific net-zero alliances.

The considerations outlined in this Note mark the beginning of an effort to inform the development of GFANZ 2024 programmatic initiatives to support the adoption of the Transition Finance strategies and inform how financing and related services to support the transition can contribute and accelerate decarbonization in the real economy.

The GFANZ Secretariat gratefully acknowledges and appreciates the hours of work by the technical team in collecting and synthesizing the concepts in this Technical Review Note, conducting the global consultation alongside numerous in-depth working conversations, and managing the production of this Note. With gratitude to Di Chen, Stephanie Chow Ashton, Julian De Georgia, Marie Christine Henniges, David King, Anja Ludzuweit, and Joy-Therese Williams.

About GFANZ

The Glasgow Financial Alliance for Net Zero is a global network of financial sector-specific alliances which are committed to support the global economy’s transition to net-zero by 2050. These sector-specific alliances represent more than 650 institutions across the financial sector, including banks, insurers, asset owners, asset managers, financial service providers, and investment consultants, spanning 50 countries and representing 40% of global private financial assets. To help unlock transition investment in emerging markets and developing economies, GFANZ regional networks work to support capacity building and adoption of transition planning and capital mobilization, and to reflect and address the diverse needs of financial systems around the world.

GFANZ publications

The GFANZ voluntary recommendations, guidance, and tools aim to support financial institutions in developing and implementing credible, high-ambition strategies for achieving net zero.

For more information and to access the latest publications, please visit gfanzero.com.



Recommendations and Guidance on Financial Institution Net-zero Transition Plans

This publication describes how financial institutions across the financial system can operationalize their net-zero commitments and support the real-economy transition.

[Download the executive summary](#)

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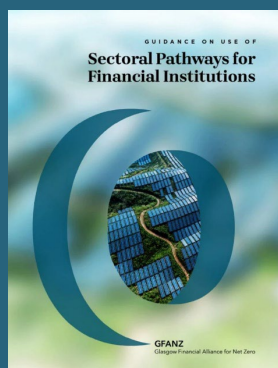
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Asia-Pacific Case Studies on Components of Financial Institution Net-zero Transition Plans

This supplementary report to “*Recommendations and Guidance on Financial Institution Net-zero Transition Plans*,” collates 12 case studies from GFANZ APAC participants and features components of transition plans.

[Download the report](#)



Guidance on the Use of Sectoral Pathways for Financial Institutions

This publication offers guidance and a framework to help financial institutions evaluate suitability of sectoral pathways in their transition planning process and implementation efforts.

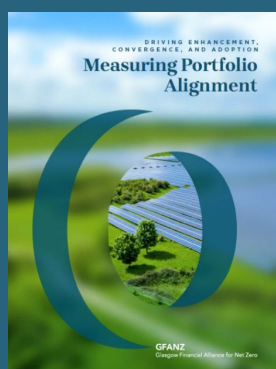
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Expectations for Real-economy Transition Plans

This report distills existing guidance to bring clarity and help companies in the real economy develop credible transition plans. Additionally, the report brings much-needed consistency on metrics and data points required by financial institutions to evaluate the progress and credibility of companies' net-zero transition plans.

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Measuring Portfolio Alignment: Enhancement, Convergence, and Adoption

This publication provides a practitioner perspective for measuring the alignment of investment, lending, and underwriting activities with the goals of the Paris Agreement and critical 2050 global net-zero objectives.

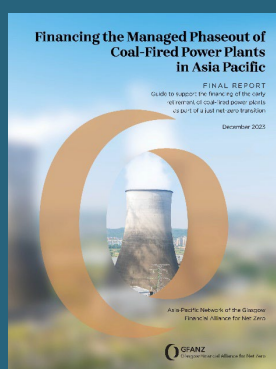
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Managed Phaseout of High-emitting Assets

This publication provides a preliminary and high-level approach to support the identification of – and guidance regarding – assets where Managed Phaseout could be appropriate.

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Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific

This publication addresses financing the Managed Phaseout of coal-fired power plants in the Asia-Pacific region and aims to provide practical guidance for net zero-committed financial institutions considering financing of coal phaseout.

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Important notice

This Technical Review Note ("Note") was developed by the GFANZ Secretariat. This Note outlines technical considerations regarding transition finance and potential decarbonization contribution methodologies. For the avoidance of doubt, nothing express or implied in this Note is intended to prescribe a specific course of action. This Note does not create legal relations or legally enforceable obligations of any kind. Each GFANZ sector-specific alliance participant unilaterally determines whether, and the extent to which, it adopts any of the potential courses of action described in this Note.

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Members of the financial sector-specific net-zero alliances comprising GFANZ have individually made commitments consistent with the high standards of their respective alliances and are not automatically expected to refer to the technical information and considerations and adopt the principles and frameworks communicated within this Note, although we expect all alliance participants to increase their ambition over time, so long as it is consistent with their fiduciary and contractual duties and applicable laws and regulations, including securities, banking, and antitrust laws.

How to read this Technical Review Note

This Technical Review Note ("Note") was developed by the GFANZ Secretariat and aims to provide financial institutions with background on potential technical methodologies to complement the financial sector's work on reducing financed emissions and execute their individual net-zero transition plans.¹ This Note aims to kick off work to explore voluntary and non-binding considerations for actors in the financial sector by reviewing, outlining, and identifying various attributes of the four key transition financing strategies, alongside an exploration of forward-looking decarbonization methodologies. This Note does not prescribe a specific course of action but offers technical information as a supplement to the guidance provided in the GFANZ 2022 Net-zero Transition Plans report.² It also provides considerations to help those financial institutions that are mobilizing capital and supporting initiatives to scale the four key transition financing strategies.

Sector-specific alliance member firms include many different types of financial institutions – banks, insurers, asset owners, asset managers, financial service providers, investment consultants, and venture capital investors. This Note recognizes that financial institutions operate in different contractual and regulatory environments that may impact their individual approaches to the voluntary/non-binding technical information outlined in this Note. The GFANZ Secretariat acknowledges that adoption, execution, and measurement of Transition Finance will vary by institution and jurisdiction and will depend on the individual characteristics of financial institutions, including size, business model, sector coverage, fiduciary duty toward their clients, and other factors. The purpose of this Note is to provide technical information that may begin to inform financial institutions' independent capital allocation decision-making process in accordance with their contractual duties and the regulatory environment in which they operate.

The GFANZ Secretariat encourages financial institutions to use the technical information in this Note and other GFANZ reports, where appropriate, alongside the guidance produced by their relevant net-zero alliance(s). Financial institutions should look to their net-zero alliance when considering how this technical information may be applied to support the implementation of their net-zero commitment, inform their institution-specific priorities and net-zero transition plans, consistent with client mandates, where applicable.

Voluntary information: This Note presents voluntary, non-binding supplemental information for financial institutions to consider when incorporating the four key transition financing strategies within their net-zero transition plans or when developing transition-related investment products for clients, and technical discussions on decarbonization contribution methodologies to complement current metrics. Financial institutions are encouraged to use this information in conjunction with the voluntary recommendations and guidance in the GFANZ Net-zero Transition Plans report,³ but not where superseding jurisdictional requirements on Transition Finance or related disclosure requirements, or contractual requirements, including mandates with clients. Some types of financial institutions may also have unique legal or regulatory constraints that may differ by jurisdiction and that may impact the extent to which individual elements of this Note can be considered.

¹ GFANZ's Net-zero Transition Plan framework (NZTP) guidance suggests that financial institutions identify priority transition financing strategies as part of the Foundations theme of an NZTP to set the context for Implementation and Engagement Strategy themes.

² GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

³ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

Pan-sector approach: This Note presents pan-sector considerations for the analysis and measurement of Transition Finance. The technical information herein aims to be applicable to institutions across the financial sector, but may not be to each individual financial institution or sector-specific alliance. Relevance of the information may vary for different types of institutions and stakeholders. The technical information does not go into significant depth for individual business areas, product lines, or asset classes. This Note is principles-based so that it can be interpreted and applied at the discretion of individual financial institutions' own processes and policies. Financial institutions are encouraged to consider this technical information alongside the guidance produced by sector-specific net-zero alliances, taxonomies, and other organizations, as appropriate.

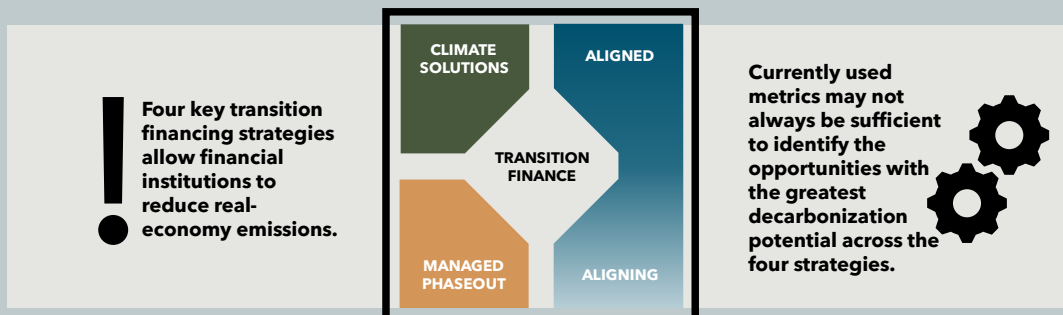
Unique roles and application for different financial institutions: Due to the pan-sector nature of the technical information in this Note, it may not reflect the different roles financial institution types play within the industry. Each financial institution is encouraged to review the technical information based on considerations such as its business model, portfolio exposure, relationship with clients and portfolio companies, choice of focus for net-zero financing strategy, and the contractual and regulatory environment within which it operates. The technical information herein should be considered by financial institutions as a resource that may be referenced as part of their net-zero transition planning efforts, particularly to support the scaling of the four key transition financing strategies, not as a specific course of action. The technical considerations in this Note can be helpful to further the understanding of the gaps, existing differences, and challenges of analysis and measurement of Transition Finance exposures and initiatives in line with the timelines and commitments established as part of global efforts under the Paris Agreement. Other financial institutions may find this Note useful, whether they have yet to publicly commit to net zero or if they have net-zero targets beyond 2050. These institutions are encouraged to prioritize near-term action and ground their analysis in climate science and pathways aligned to 1.5 degrees C.

Focus on development and implementation: This Note aims to provide technical information for further development, highlighting the existence of challenges and different understandings among sector initiatives and to begin to outline potential approaches to assessing and measuring Transition Finance exposure across the four key transition financing strategies, rather than specific guidance on disclosure. While the GFANZ Secretariat encourages transparent disclosure of assumptions and Transition Finance-related outputs, this Note does not intend to provide guidance on disclosure. Each financial institution should determine specific content, location, and frequency for disclosing relevant information related to Transition Finance, consistent with the guidance of its respective sector-specific alliances, business confidentiality, and jurisdictional requirements, if any.

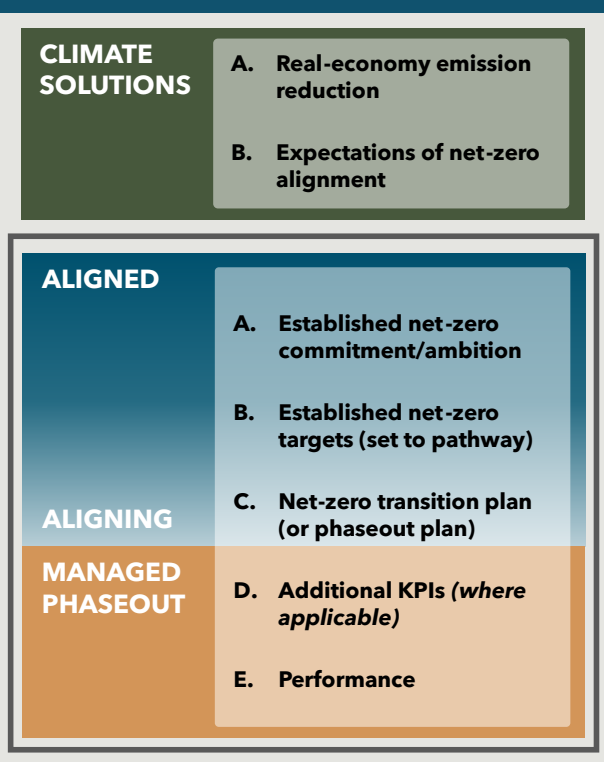
Living document: The GFANZ Secretariat acknowledges that supporting pathways, data, tools, and methodologies may be nascent or exploratory and may not yet be available for all regions, sectors, and situations, and that policy, regulation, technology, and science are evolving, often at a rapid pace. As financial institutions work to implement the Transition Finance strategies outlined here and in other technical concepts more widely, it is expected that the necessary tools, methodologies, and datasets will further develop.

Scaling Transition Finance and Real-economy Decarbonization

Transition Finance must be scaled rapidly – consistent definitions of Transition Finance and well-developed mechanisms to capture decarbonization potential may help to close the funding gap



Part I – Refines Attributes for identification of the four key transition financing strategies



Part II – Outlines quantification methods for decarbonization contribution

Introduces the concept of Expected Emission Reductions (EER) which are calculated using different methodologies, depending on the transition financing strategy.

Avoided Emissions

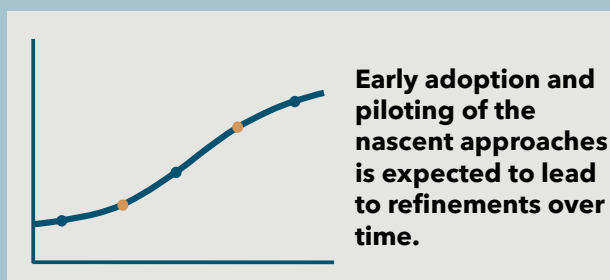
based on Life Cycle Analysis

Emissions Reduction Potential

For both methods, EER calculation encompasses three steps:



Look ahead



Relationship to other frameworks



Data availability, consistency, and quality



Methodology issues and concepts



Executive summary

In 2022, GFANZ published recommendations and guidance for credible Net-zero Transition Plans (NZTP). The NZTP framework introduced transition finance and the four key financing strategies and provided guidance on how to integrate them into a financial institution's NZTP. This Technical Review Note provides a supplement to the 2022 guidance by further developing the Transition Finance strategies and discussing potential decarbonization contribution methodologies as a complement to today's metrics.⁴

The NZTP recommendations and guidance are principles-based to apply globally and therefore can act as a reference for regional policymakers and regulators. In 2023, the Transition Planning Taskforce (TPT) published its final guidance on a Disclosure Framework for Transition Plans,⁵ building from and addressing the same core elements found in the GFANZ NZTP framework and referencing the GFANZ four key financing strategies. The U.S. Department of the Treasury released its Principles for Net-Zero Financing & Investment⁶ which are well-aligned with the GFANZ four key transition financing strategies.⁷ GFANZ supports global convergence around common market-based approaches.

This Technical Review Note further develops the Transition Finance strategies that the Glasgow Financial Alliance for Net Zero (GFANZ) work articulated in 2022 and outlines technical considerations on potential decarbonization contribution methodologies.⁸

This Note presents voluntary, non-binding technical information for financial institutions to consider if they choose to incorporate the four key transition financing strategies⁹ in their net-zero transition plan. These are nascent technical concepts that will require further testing, piloting, and development to drive widespread market acceptance alongside better tools, methodologies, and datasets to support wider adoption.

Background: The need to scale Transition Finance

Nearly 200 countries signed the Glasgow Climate Pact 2021, through which they resolved to “pursue efforts to limit the temperature increase to 1.5 degrees C.”¹⁰ The IPCC estimates that a three- to six-fold increase in transition finance is needed by 2030 to support a 1.5 degrees C goal.¹¹ The private financial sector has the scale to mobilize the necessary capital and financing services to support the efforts by government and the real economy, but it needs clear policy support, real-economy transition plans, and fit-for-purpose frameworks and methodologies to deliver.

GFANZ is a global network of financial sector-specific alliances which are committed to support the global economy's transition to net-zero by 2050, now including more than 650 institutions across the financial sector.

⁴ Transition Finance and the four key financing strategies were introduced in the 2022 GFANZ report [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁵ TPT. [Disclosure Framework](#), October 2023.

⁶ US Department of the Treasury. [Principles for Net-Zero Financing and Investment](#), September 2023.

⁷ For further details and a high-level mapping of select existing frameworks, refer to [Table 1](#).

⁸ Transition Finance and the four key financing strategies were introduced in the 2022 GFANZ report [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁹ For avoidance of doubt, the four key financing strategies identified by GFANZ in 2022 are referred to as “transition financing strategies” in this Technical Review Note.

¹⁰ UNFCCC. [Glasgow Climate Pact 2021](#), 2021.

¹¹ IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023.

Despite the momentum, significant methodological and financing challenges remain to mobilize capital toward areas of the economy critical to the transition.

To meet some of these challenges, the GFANZ Net-zero Transition Plans framework (NZTP) published in 2022,¹² defined Transition Finance and identified the four key transition financing strategies that financial institutions, real-economy companies, and governments need to support to enable an orderly¹³ and inclusive whole-economy transition. The four strategies finance or enable:

- **Climate Solutions** – Entities and activities that develop and scale Climate Solutions
- **Aligned** – Entities that are already aligned to a 1.5 degrees C pathway
- **Aligning** – Entities committed to transitioning in line with 1.5 degrees C-aligned pathways
- **Managed Phaseout** – The accelerated Managed Phaseout of high-emitting physical assets

The GFANZ Net-Zero Transition Plan Framework outlined the need for appropriate metrics and targets to drive the execution of net-zero transition plans and scale Transition Finance, including metrics for i) real-economy transition; ii) plan execution; and iii) portfolio (financed) emissions. The NZTP framework noted that complementing portfolio emissions with real-economy transition metrics may help to avoid unintended consequences of reducing financing support to real-economy emissions reduction efforts, particularly in high-emitting sectors.

The purpose of this Note is to support financial institutions' efforts to scale capital allocation across the four key transition financing strategies by:

1. Providing supplemental information on the four key transition financing strategies to support and scale their adoption and thus inform net-zero transition plans; and
2. Proposing complementary, forward-looking approaches to evaluate the decarbonization contribution potential of exposures that may be considered alongside other metrics and targets established within net-zero transition plans.

This Note sets out to deliver the former by outlining a set of Attributes that allow the analysis of financing and/or enabling initiatives for applicability to each of the four key transition financing strategies. The latter introduces the concept of Expected Emissions Reduction (EER) as a forward-looking metric that estimates potential emissions reduction of exposures.

The approaches outlined in this Note are illustrated in a dedicated [Case study](#).

Part I: Transition Finance

Part I of this Note revisits the GFANZ definition of Transition Finance and provides more detail on the four key transition financing strategies. Principles-based Attributes, built on the original GFANZ definitions and drawn from other relevant frameworks, are introduced and can be used to identify opportunities, portfolio holdings, and clients under each strategy. Such technical information could be useful to inform net-zero transition planning within financial institutions, especially the Implementation and Engagement Strategies.¹⁴

¹² GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

¹³ GFANZ uses the term "orderly transition" to refer to a net-zero transition in which both private sector action and public policy changes are early and ambitious, thereby limiting economic disruption related to the transition (e.g., mismatch between renewable energy supply and energy demand). For reference, the Network for Greening the Financial System (NGFS), which develops climate scenarios used by regulators and others, defines "orderly scenarios" as those with "early, ambitious action to a net-zero GHG emissions economy," as opposed to disorderly scenarios (with "action that is late, disruptive, sudden and/or unanticipated"). In an orderly transition, both physical climate risks and transition risks are minimized relative to disorderly transitions or scenarios where planned emissions reductions are not achieved. This explanation applies to all mentions of the term "orderly transition" in this Note.

¹⁴ The GFANZ NZTP framework comprises five themes: Foundations, Implementation Strategy, Engagement Strategy, Metrics and Targets, and Governance.

Climate Solutions

Climate Solutions include three sub-types: Solutions that directly reduce or remove emissions; Enablers that contribute indirectly; and Nature-based solutions that mitigate climate impacts and are an area of further work. There are two Attributes for Climate Solutions:

- A. **Real-economy emissions reduction:** Direct or indirect net contribution to emissions reductions should be significant and should not lead to the extension of the lifetime emissions of assets identified for phaseout.
- B. **Expectations of net-zero alignment:** The Climate Solution's own emissions should be reasonably expected to progress toward net-zero over time.

Aligned and Aligning

The Aligned and Aligning strategies apply to consecutive stages in an entity's transition toward net zero, delineating the entity's level of commitment and progress toward operations consistent with a net-zero pathway. There are five Attributes for Aligned and Aligning entities:

- A. **Established net-zero commitment/ambition:** A commitment or stated ambition to reach net zero with pathways or benchmarks specified.
- B. **Established net-zero targets (set to pathway):** Establishment of emissions-based key performance indicators (KPIs) covering Scopes 1, 2, and 3 (if material), covering interim targets to net zero.
- C. **Net-zero transition plan:** For Aligned entities, a net-zero transition plan should be established and implemented; for Aligning entities, it should be under development.
- D. **Additional KPIs** (where applicable): Suggestions for additional KPIs that may be considered in the identification of Aligned and Aligning entities (such as low-carbon revenues or low-carbon capex).
- E. **Performance:** Aligned entities are expected to show alignment to pathways and actual performance against their targets for two continuous years; Aligning entities are converging toward pathways and expected to meet interim targets.

Managed Phaseout

The Managed Phaseout strategy covers the financing and enabling of high-emitting assets to facilitate their early retirement ahead of the end of their designed lifespan, while managing service continuity and community interests.

The work presented in this Note about the Managed Phaseout strategy builds on the 2022 GFANZ Managed Phaseout report¹⁵ and is consistent with the more recent work by the GFANZ Asia-Pacific (APAC) regional network on the Managed Phaseout of coal assets,¹⁶ highlighting the interconnectedness and relevance of the latter report's ten recommendations to the Attributes outlined in this Note. The five Attributes for Managed Phaseout mirror those for Aligned and Aligning strategies:

- A. **Established net-zero commitment/ambition:** A clear commitment to phase out the asset.
- B. **Established net-zero targets (set to pathway):** Requires specific targets to track phaseout progress.
- C. **Net-zero transition plan (or phaseout plan):** A phaseout plan either specific to the asset or captured within a wider phaseout strategy.
- D. **Additional KPIs** (where applicable): Suggestions for additional KPIs that may be considered in the specific case of Managed Phaseout, e.g., just transition considerations.
- E. **Performance:** Demonstrated performance against established targets.

¹⁵ GFANZ. [The Managed Phaseout of High-emitting Assets](#), June 2022.

¹⁶ GFANZ. [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#), December 2023.

In development

This Note recognizes that not all exposures will fall within one of the four key transition financing strategies at this time for numerous reasons. The section “In development” outlines some key areas where the technical information can inform where financial institutions may wish to support clients and portfolio companies to progress their transition activities. For example, the “In development” category may include exposures that have not yet been assessed due to time or data constraints, entities that are not aligned, etc.

Part II: Decarbonization contribution methodologies

Part II introduces the concept of Expected Emissions Reduction (EER) as a complementary measure to existing KPIs. Similar to the “expected return” of a financing decision, the EER could be quantified to express the “emissions return” of a financing decision by representing the unrealized emissions reduction potential of an asset or entity over a specified timeframe. The EER may offer a possible approach to assess and quantify the decarbonization contribution potential of portfolio holdings and clients, and may provide an additional lens to support mobilization of financing and support toward high-emitting sectors.

This Technical Review Note discusses considerations for the quantification and use of EER including transparency; credibility considerations; context-setting; data limitations; and methodological uncertainties.

Potential decarbonization contribution methodologies

Different quantification methods for EER based on existing approaches are outlined. For Climate Solutions, existing Avoided Emissions approaches based on Life Cycle Analysis (LCA) are explored as one potential means of deriving EER. For the remaining strategies, Aligned, Aligning, and Managed Phaseout, the Emissions Reduction Potential (ERP) approach is outlined as a possible method. The methodological approaches for calculating EER as detailed in this Note encompass three major steps:

1. **Benchmark** – the construction of a counterfactual representation of emissions in the absence of the transition-related activity;
2. **Projection** – the forecasting of the expected emissions due to the transition-related activity;
3. **Calculation** – a comparison of Steps 1 and 2.

Use case considerations

Due to the nascency of the EER concept and methodologies to derive it, a number of complexities still exist for its credible application and present opportunities for further development. Notably, these relate to assumptions made in the calculation process; adjustments (e.g., to take into account the “time value of carbon”); allocation considerations; and the development of new KPIs based on the EER, such as “emissions returns”, which is similar to the concept of Return on Investment. For credibility and in support of financial institutions that choose to test or pilot the EER concept, this Note emphasizes the value of net-zero transition plans as a foundation for the assumptions used in the EER calculation. Furthermore [overarching principles](#), critical variables and assumptions (e.g., science-based pathways); methodological/quantification adjustments (e.g., target weighting); and other application considerations (e.g., start with known use of proceeds) are outlined. Although further work is required to develop and refine the EER concept and methodologies, piloting of the concept and methodologies may be useful for internal decision-making today and will be important for the iterative refinement and operationalization of the approach over time.

Areas for further work

While significant challenges to the widespread application of the methods and approaches outlined remain, this Note provides a basis for further work toward the common aim of consistency that will help to scale Transition Finance and enable an orderly net-zero transition.

Key areas of further work include the relationship to other frameworks and methodologies relating to Transition Finance and potential decarbonization contribution methodologies; data challenges (e.g., availability, consistency, and quality); and refinements of the methodology and concepts presented in this Note.

The road ahead

The approaches outlined here are introductory and aimed at addressing the significant funding gap that remains a major barrier to achieving net-zero. Early adoption and testing by practitioners and experts will be crucial to help the methodologies mature, while policymakers and governments can help bring clarity to the landscape of Transition Finance by developing taxonomies, regulations, standards, and enabling policies. All stakeholders play a critical role in accelerating financing and support for the four key transition financing strategies, and thus contributing to the achievement of net zero and limiting global warming to 1.5 degrees C.

Figure E-1. Summary of the Attributes for the four key transition financing strategies.

CLIMATE SOLUTIONS <ul style="list-style-type: none"> • Solutions • Enablers • Nature-based solutions 	A. Real-economy emission reduction	i. Includes both direct and/or indirect real -economy emissions reductions ii. Not leading to lifetime emissions expansion of phaseout assets
	B. Expectations of net-zero alignment	Includes considerations of near- and medium-term timelines and pathways
ALIGNED & ALIGNING	A. Established net-zero commitment/ambition	Commitment/ambition to reach net zero
	B. Established net-zero targets (set to a plan)	Appropriate KPIs to monitor progress (Emissions, Transition -based)
	C. Net-zero transition plan (or phaseout plan)	Aligned only: established and being implemented Aligning only: developing Managed Phaseout only: phaseout plan
	D. Additional KPIs (where applicable)	Any other KPIs relevant for decarbonization/transition progress
	E. Performance	Aligned only: actual performance against targets – two years continuous Aligning only: increasingly meaningful progress towards targets Managed Phaseout only: actual performance regarding asset phaseout
MANAGED PHASEOUT		

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An aerial photograph of a modern, multi-story building with a unique, angular design. The building features extensive glass facades and concrete structural elements. The most striking feature is the green roofs, which are covered in lush vegetation, including several tall, young trees and dense shrubs. The building is surrounded by more greenery, and the overall scene is bathed in bright, natural light, suggesting a sunny day. The perspective is from a high angle, looking down at the building's complex layout.

Introduction

Overview

Governments and real-economy companies around the world have committed to achieving net zero with the goal of limiting global warming to 1.5 degrees C. Nearly 200 countries signed the Glasgow Climate Pact 2021, through which they resolved to “pursue efforts to limit the temperature increase to 1.5 degrees C.”¹⁷ These efforts are driven by the growing understanding of climate impacts. Without deep and rapid emissions reduction by 2030 across all sectors, the IPCC warns that it will be impossible to limit global warming to 1.5 degrees C.¹⁸ The IPCC indicated that limiting global warming to around 1.5 degrees C with “no or limited overshoot” requires greenhouse gas emissions to peak before 2025 at the latest and be reduced by 45% by 2030, reaching net zero by 2050.¹⁹

Alongside government efforts on climate change, over 1,000 of the world’s largest publicly traded companies have also made net-zero commitments.²⁰ The financial sector can support the real economy by facilitating the allocation of capital and providing related services. The financial sector can help enable a global net-zero transition that avoids the worst impacts of climate change; minimizes firm-specific transition risks to financial stability; and is just and orderly²¹ across countries and communities.

To deliver on these commitments and drastically reduce GHG emissions, real-economy firms – supported by clear policy signals from government, and the provision of enabling Transition Finance and related services from the financial sector – will have to decarbonize their business activities and scale climate solutions to replace high-GHG-emitting assets, products, and services. The IPCC estimates that a three- to six-fold increase in Transition Finance is needed by 2030 to limit warming to 1.5 degrees C.²² The private financial sector has the scale to mobilize the majority of the necessary capital and financing, with more than 650 financial institutions, representing 40% of global private financial assets, committed to the goal of net zero by 2050 through membership in one of the financial sector-specific alliances comprising GFANZ. However, there remain significant methodological and financing challenges to identifying what qualifies as Transition Finance and how it can most efficiently allocate capital to decarbonize so as to fund areas of the economy critical to the transition.

Transition Finance and the four key transition financing strategies

GFANZ defines Transition Finance as investment, financing, insurance, and related products and services that are necessary to support an orderly real-economy transition to net zero.

GFANZ has identified four key transition financing strategies that finance or enable the following:

- **Climate Solutions** – Entities and activities that develop and scale climate solutions
- **Aligned** – Entities that are already aligned to a 1.5 degrees C pathway
- **Aligning** – Entities committed to transitioning in line with 1.5 degrees C-aligned pathways
- **Managed Phaseout** – The accelerated managed phaseout of high emitting physical assets

¹⁷ UNFCCC. [Glasgow Climate Pact 2021](#), 2021.

¹⁸ IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023.

¹⁹ IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023.

²⁰ [Net Zero Tracker](#) as of November 2023.

²¹ GFANZ uses the term “orderly transition” to refer to a net-zero transition in which both private sector action and public policy changes are early and ambitious, thereby limiting economic disruption related to the transition (e.g., mismatch between renewable energy supply and energy demand). For reference, the Network for Greening the Financial System (NGFS), which develops climate scenarios used by regulators and others, defines “orderly scenarios” as those with “early, ambitious action to a net-zero GHG emissions economy,” as opposed to disorderly scenarios (with “action that is late, disruptive, sudden and/or unanticipated”). In an orderly transition, both physical climate risks and transition risks are minimized relative to disorderly transitions or scenarios where planned emissions reductions are not achieved. This explanation applies to all mentions of the term “orderly transition” in this Note.

²² IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023.

Clarity over the broad types of strategic financing approaches consistent with a rapid and orderly transitioning of the real economy can help to drive action and scale capital mobilization. There is growing recognition that financial institutions play a critical role in enabling the economy in its decarbonization efforts, supporting a wide range of real-economy actors to deliver everything from innovative climate solutions to addressing high-emitting activities, through to the orderly phaseout of high-emitting assets.

In the 2022 GFANZ Net-zero Transition Plans (NZTP) framework, GFANZ defined Transition Finance and introduced the four key transition financing strategies that would enable an orderly and inclusive whole-economy transition.²³ The NZTP recommendations and guidance are principles-based so as to apply globally and therefore can act as a reference for regional policymakers and regulators. In 2023, the Transition Plan Taskforce (TPT) published its final guidance on a Disclosure Framework for Transition Plans,²⁴ building from and addressing the same core elements found in the GFANZ NZTP framework and referencing the GFANZ four key financing strategies. The U.S. Department of the Treasury released its Principles for Net-Zero Financing & Investment,²⁵ which are well-aligned with the GFANZ four key transition financing strategies.²⁶

To deliver transition planning that is credible, comprehensive, and comparable and that drives finance and support across the four key transition financing strategies with rigor and accountability, the 2022 GFANZ NZTP framework introduced ten components, arranged under five themes, of credible net-zero transition plans. The five themes work together to show intent (Foundations); demonstrate a well-developed and executable strategy (Implementation and Engagement Strategy); address internal accountability (Governance); and measure, set targets, and track progress (Metrics and Targets).

To support the execution of net-zero transition plans and scale Transition Finance, within the theme of Metrics and Targets, financial institutions are recommended to establish a suite of metrics and targets across three areas: i) real-economy transition; ii) plan execution; and iii) portfolio emissions. The range of metrics and targets should be customized to support firm-specific objectives and priorities and use cases. This Note expands on the first type of metric, namely metrics that capture real economy decarbonization benefits.

Much work has been done to mainstream and standardize financed emissions metrics and targets, including by standard setters such as the Partnership for Carbon Accounting Financials (PCAF).²⁷ Focusing on the reduction of financed emissions alone may not be sufficient to unlock the required real-economy emissions reduction. For example, reducing financed emissions alone may not allow for financing of Climate Solutions, which provide emissions reductions to the broader economy but that may themselves be a source of emissions. Also, reducing financed emissions may reduce the financing and support needed to retire high-emitting assets whose continued use depletes the carbon budget necessary to meet the objectives of the Paris Agreement.

Adopting forward-looking measures that can capture expected decarbonization contribution potential may be beneficial, serving as a complement to historical and point-in-time metrics and targets. As illustrated in [Figure 1](#), such forward-looking measures provide a supplementary perspective that recognizes the future emissions reduction potential and thereby may provide a more comprehensive view for financial institutions to consider in supporting high-emitting actors, with the appropriate conditions, alongside their lower-emitting counterparts.

²³ References in this Technical Review Note to the GFANZ NZTP framework refer specifically to the [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022 report, and not the technical considerations outlined in this Note

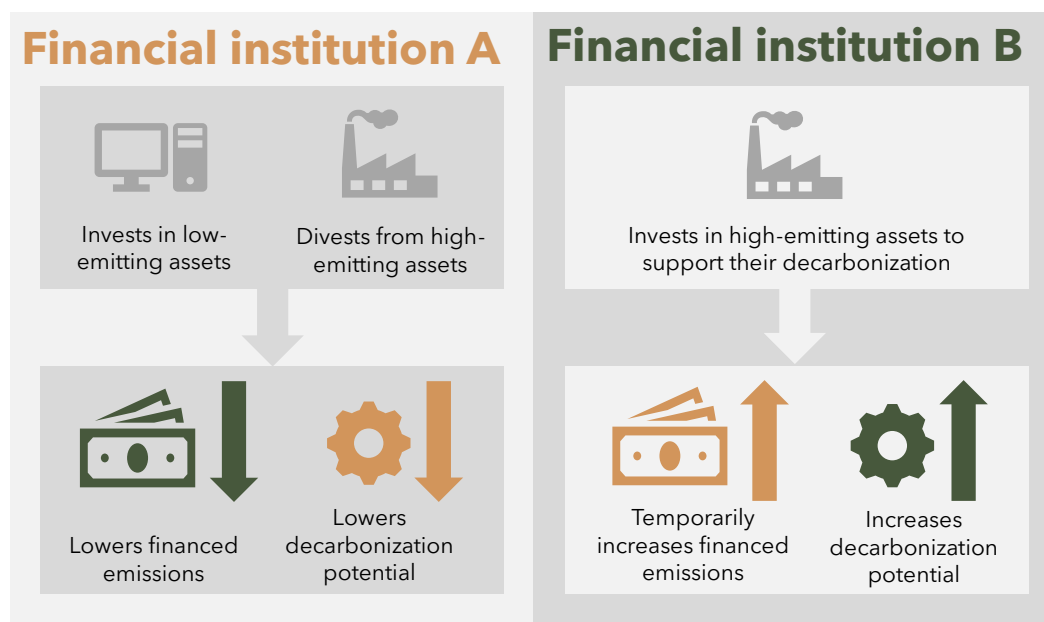
²⁴ TPT, [Disclosure Framework](#), October 2023.

²⁵ US Department of the Treasury, [Principles for Net-Zero Financing and Investment](#), September 2023.

²⁶ For further details and a high-level mapping of select existing frameworks, refer to [Table 1](#).

²⁷ PCAF, [The Global GHG Accounting and Reporting Standard for the Financial Industry](#).

Figure 1. Example illustrating how forward-looking measures can complement financed emissions



When considering the potential impact to the planetary carbon budget, not all decarbonization and transition opportunities deliver comparable system-wide carbon reductions. As illustrated in Figure 1, by relying only on financed emissions, financial institution A may drive financing to assets and entities that are inherently low-emitting or have already decarbonized. This may result in less decarbonization impact from those financing activities. By financing high-emitting assets and companies – backed by the ten components of a net-zero transition plan including engagement – financial institution B may temporarily increase financed emissions, but also may unlock deeper, more significant decarbonization over time if financial institutions B supports those companies to deliver on their own decarbonization strategies.

The purpose of this Technical Review Note

This Technical Review Note was developed by the GFANZ Secretariat to support financial institutions' efforts to scale capital allocation across the four key transition financing strategies by:

- i) Providing supplemental information on the GFANZ four key transition financing strategies to support and scale their adoption and thus inform net-zero transition plans; and
- ii) Proposing complementary, forward-looking approaches to evaluate the decarbonization contribution potential of exposures that may be considered alongside other metrics and targets established within net-zero transition plans.

This Note presents the Attributes to support the analysis of financing and/or enabling initiatives across the four key transition financing strategies and outlines technical considerations and approaches to estimating potential forward-looking emissions impacts – or Expected Emissions Reduction (EER) – for each of the four key transition financing strategies. The concepts and technical information presented in this Note may be applied to help inform financial institutions' net-zero transition plans. The Note also discusses overarching principles in applying these concepts and case studies and examples to illustrate potential use cases and support application by financial institutions.

This Note seeks to make use of, and so be complementary to, existing industry-specific and region-specific resources already in use by sector-specific alliance members and the broader financial community. The technical information herein aims to encourage greater consistency, ambition, and comparability across the financial sector.

By advancing consideration and implementation of forward-looking decarbonization contribution approaches and metrics as complementary measures to existing metrics and targets, financial institutions can contribute to the evolution of these emerging concepts by applying them to current finance activities, helping to identify challenges as well as best practices. The GFANZ Secretariat anticipates these developments will unfold over time and will look to advance the concepts outlined in this Note as part of the GFANZ 2024 work program.

For sector-specific alliance members, a transition plan should be consistent with achieving net zero by 2050, at the latest, in line with commitments and global efforts to limit warming to 1.5 degrees C, above pre-industrial levels, with low or no overshoot.^{28,29,30}

Background and purpose

To support a whole-economy transition to net zero, financing and related services across four key transition financing strategies need to scale. In 2022, GFANZ published a series of voluntary, pan-financial sector recommendations, guidance, and related information to support the transition of the global economy to net zero. At the heart of this work is a framework on Net-zero Transition Plans (NZTP) including four key transition financing strategies³¹ that GFANZ identified as essential to driving the real-economy transition. The strategies provide a lens through which investment, underwriting, lending, and other enabling activities can be viewed to consider whether and how particular assets, activities, or entities can support and drive the transition. The strategies include financing or enabling the following:

- **Climate Solutions** – Entities and activities that develop and scale climate solutions
- **Aligned** – Entities that are already aligned to a 1.5 degrees C pathway
- **Aligning** – Entities committed to transitioning in line with 1.5 degrees C-aligned pathways
- **Managed Phaseout** – The accelerated managed phaseout of high emitting physical assets

While 2022 produced record investments in clean energy – an increase of 40% from 2020 – significantly more capital allocation is needed. More than 75% of emissions come from energy consumption.³² Energy investment overall is expected to increase to US\$2.8 trillion in 2023, up from US\$2.2 trillion five years ago.³³ The IEA³⁴ estimates that to be on track to keep to only 1.5 degrees C warming, global investment in energy infrastructure alone must increase from US\$2.8 trillion to US\$4.7 trillion by 2030, with an increasing portion allocated to clean energy. In 2023 the ratio of investment in clean energy technology to fossil fuels is 1.8:1. In 2030 the ratio needs to rise to about 10:1 (see Figure 2).

Financing gaps and financing opportunities exist across all sectors and addressing this will require action by governments, companies, and the financial system. To decarbonize high-emitting sectors including shipping, aviation, steel, cement, and aluminum, an estimated total investment of over US\$6 trillion is needed by the year 2050.³⁵ Despite increasing commitments at country level, the recent results of the Global Stocktake³⁶

²⁸ Pathways giving at least 50% probability based on current knowledge of limiting global warming to below 1.5 degrees C are classified as “no overshoot,” while those limiting warming to below 1.6 degrees C and returning to 1.5 degrees C by 2100 are classified as “1.5 degrees C limited overshoot.”

²⁹ These requirements reflect sector-specific alliance member commitments.

³⁰ Through their net-zero alliances, alliance members have all committed to setting an interim target for 2030 or sooner.

³¹ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

³² United Nations | Climate Action. [Causes and Effects of Climate Change](#).

³³ IEA. [World Energy Outlook 2023](#), October 2023, p. 49.

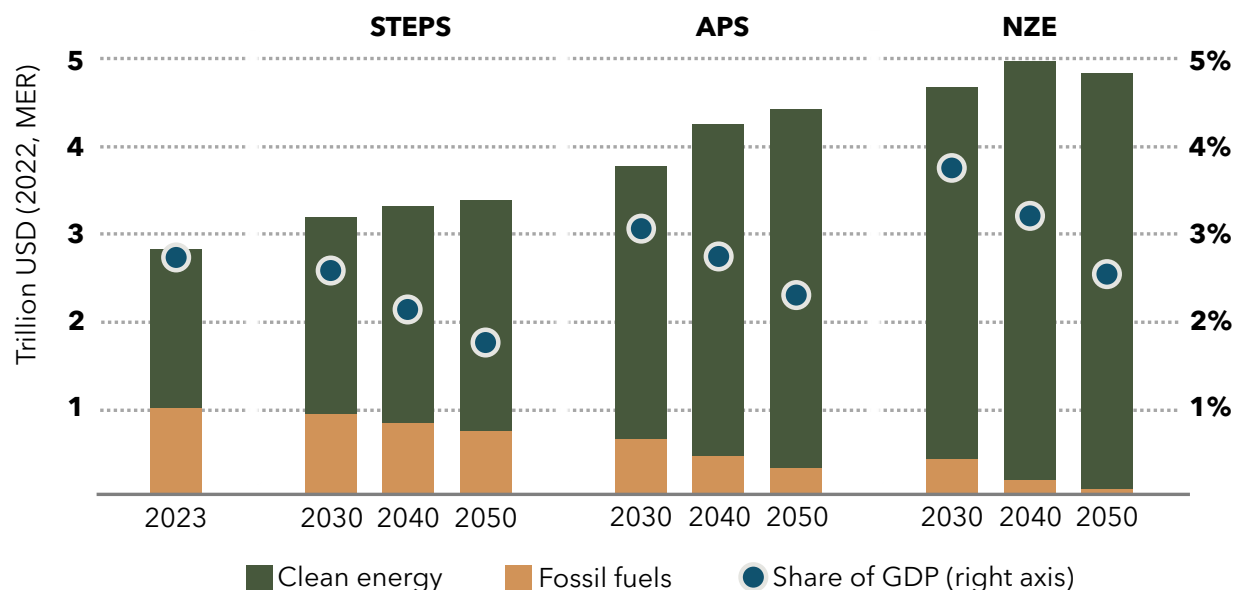
³⁴ IEA. [World Energy Outlook 2023](#), October 2023, p. 49.

³⁵ Shipping (\$1.2 trillion); aviation (\$2.1 trillion); steel (\$1.4 trillion); cement (\$480 billion); aluminum (\$1 trillion). Refer to [Appendix H](#) for details and sources.

³⁶ UNFCCC. [Global Stocktake](#), 2023.

show that there continues to be a considerable gap between commitments made and policy to implement those commitments. Alongside needing more policy – and enabling infrastructure – and notwithstanding encouraging progress in certain sectors, such as renewables, some technological barriers need addressing and companies need to develop transition plans. As well, and some significant funding gaps remain in advanced economies and are particularly in Emerging Markets and Developing Economies (EMDEs).³⁷

Figure 2. IEA investment trends as share of global GDP by scenario, 2023 - 2050



The time value of carbon and catalytic impacts of early movers further highlight the need for more rapid scaling of Transition Finance. Current levels of funding fall short of what is required in this decade, highlighting the need to scale Transition Finance in the near and medium term. Moreover, the notion of the “time value of carbon”³⁸ centers on the premise that GHG emissions reductions today are more impactful than future reductions because of the escalating nature of climate-related risks. The earlier the decarbonization potential is realized, the longer the benefit seen by the climate system, reducing systemic risk and associated negative impacts on global GDP.³⁹ From a systems perspective, the earlier decarbonization initiatives and infrastructure are implemented, the greater the likelihood these actions will serve as catalysts, building the foundation and necessary conditions to rapidly decarbonize the global economy.

Private finance plays a key role by providing capital and support necessary for the transition at scale and pace to the real-economy companies that need it most. The greatest emissions reduction may be achieved by directing financing and related services to – rather than divesting⁴⁰ from – high-emitting sectors, entities, and assets that need the financing to transition. Financial institutions can prioritize financing and enabling efforts across the four key transition financing strategies to support clients and portfolio companies in reducing real-economy emissions. A key theme of the NZTPs for financial institutions is engagement with clients and portfolio companies across all sectors to support and accelerate the development of their own net-zero transition plans to articulate capital needs for the transition.

³⁷ GFANZ. [Mobilizing Capital in and to Emerging Markets and Developing Economies](#), December 2023.

³⁸ Generation Investment Management. [The Time Value of Carbon](#), May 2021.

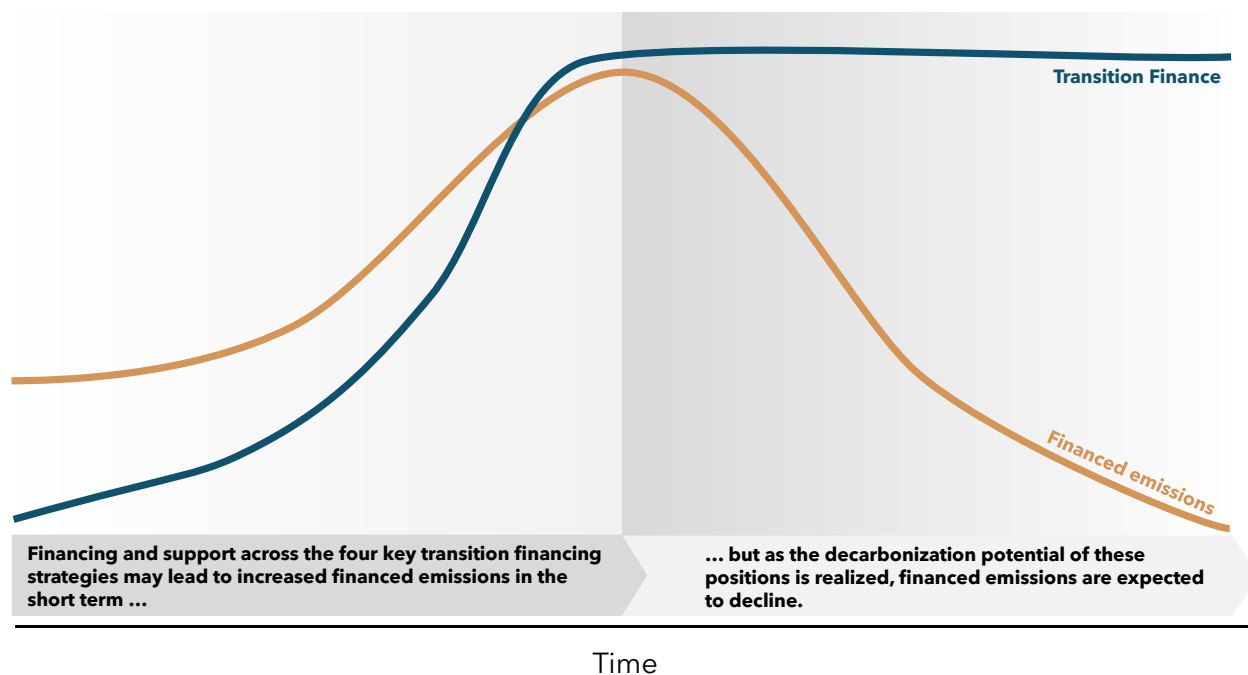
³⁹ IMF. [World Economic Outlook, Chapter 3 Near-Term Macroeconomic Impact of Decarbonization Policies](#), October 2022, p.1.

⁴⁰ In this context, divestment refers to an exclusionary policy based on identification, such as by sector. For clarity, this is different than divestment performed by re-allocating funds after an investment reaches maturity or as a result of financial analysis, or after engagement efforts have been unsuccessful.

Current mechanisms that rely solely on historical and point-in-time metrics, targets, and considerations may not adequately drive capital allocation to critical areas, such as heavy-emitting sectors.⁴¹ Existing mainstream metrics and targets are generally based on financed emissions. Financed emissions or portfolio footprints measure historical decarbonization progress and are used to set targets often based on science-based pathways and benchmarks. This approach, while important for evaluating how financing activities align with the carbon budget, may not drive financing and support for Climate Solutions, which need to scale and replace high-emitting activities. As well, this approach can deter financing of high-emitting portfolio holdings and may also deter clients from adopting strategies to meet their own targets. In other words, only considering financed emissions may limit capital allocation across a diverse range of activities that require financing and support, including (not exhaustive):

- Development and scaling of enablers that may be necessary before associated no/low carbon Solutions are scaled or in place (e.g., grid infrastructure)
- Decarbonization of high-emitting sectors that need funding to decarbonize activities that need to continue, or implementation of the Managed Phaseout of high-emitting assets that are not compatible with a net-zero economy
- Development of innovative financing mechanisms and potentially longer-term policy efforts that are necessary to bring more Managed Phaseout opportunities into the pipeline, especially given the nature of phaseout transitions

Figure 3. Illustration showing progress of increasing the Transition Financing by a financial institution to support net-zero objectives



Incorporating forward-looking metrics as a complementary consideration may more fully capture the “value add” of the decarbonization potential of high-emitting exposures. Although forward-looking approaches are still nascent, it may be beneficial for financial institutions to complement their existing metrics, targets, and analyses with measures that can capture future, expected real-emissions reductions. Forward-looking metrics together with historical/point-in-time measures, can provide a more holistic perspective on how financing is supporting the transition. Using a suite of metrics that recognizes current and future decarbonization

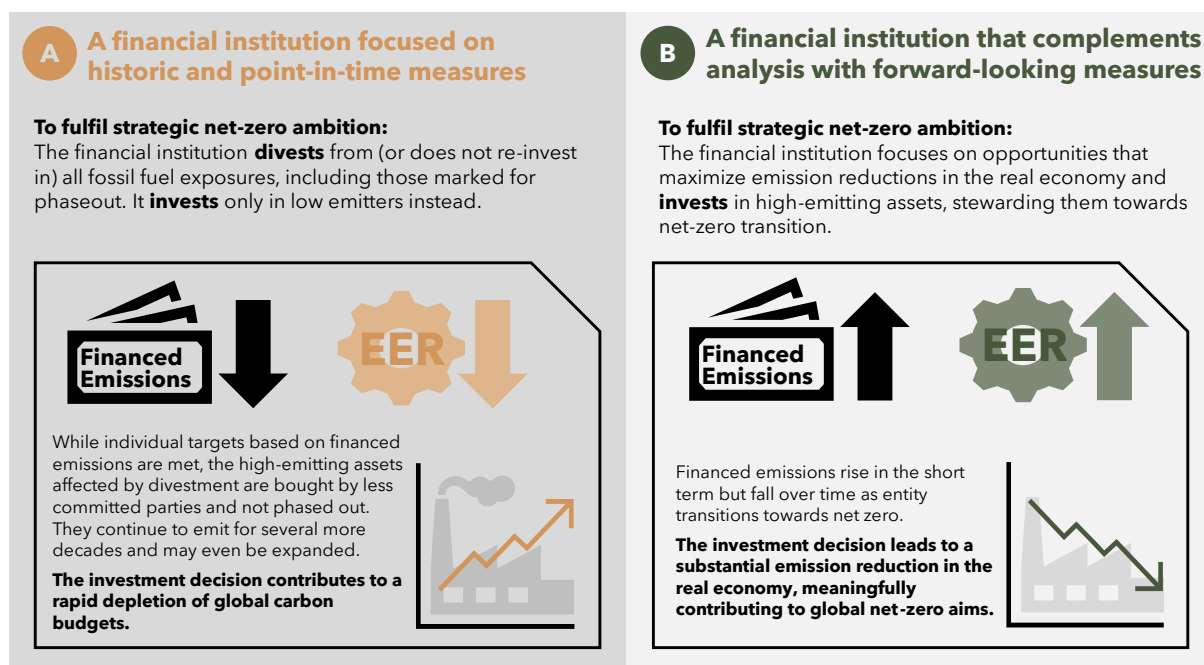
⁴¹ Per IPCC, the energy, transport, and industry sectors account for 70% of global GHG emissions.

contributions provides additional ways for financial institutions to also consider high-emitting transition opportunities.⁴²

While there may be an initial increase in financed emissions when high-emitting exposures are included in portfolios, the expectation is that the decarbonization potential of these positions would be unlocked and financed emissions across the economy therefore would decrease as expected real-economy emissions reductions are realized. Real-economy emissions reductions, however, may be dependent on capital or operating expenditures being allocated toward transition activities in the real-economy companies or on operating efficiencies being deployed. Transition activities should be considered as part of a strategic transition plan (see [Figure 3](#)).

The purpose of this Note is to introduce Attributes for the GFANZ four key transition financing strategies and to explore forward-looking approaches to evaluate potential decarbonization contributions in support of scaling Transition Finance. Part I of this Note outlines the Attributes and supplemental information to support the assessment of financing and/or enabling initiatives across the four key transition financing strategies. The Attributes and considerations help inform financial institutions' net-zero transition plans and can be applied to capture exposure to the four key transition financing strategies that then serve as a basis for additional calculations. Part II then explores technical considerations involved in deriving the potential decarbonization contribution, or Expected Emissions Reduction (EER), across each of the four key transition financing strategies, and discusses how the forward-looking measure may be used to complement existing metrics and to support decision-making.

Figure 4. Illustration of the value of including complementary forward-looking metrics such as the EER to encourage financing and support across all sectors, including high-emitting sectors



⁴² Analysis would still be required to evaluate the decarbonization potential of the high-emitting opportunity to no/low-carbon opportunity.

Scope and approach

This GFANZ Secretariat-developed Technical Review Note (“Note”) provides a review and analysis of a range of complementary Transition Finance frameworks; emerging potential decarbonization methodologies; and considerations for how individual financial institutions might apply them to the GFANZ four key transition financing strategies to inform their net-zero transition planning. This Note is intended to support financial institutions in applying the GFANZ four key transition financing strategies and building forward-looking metrics that are complementary to financed emissions metrics to incentivize the scaling of Transition Finance. In providing this analysis to the global finance sector, we seek to encourage further development and testing of frameworks and metrics related to Transition Finance. The GFANZ Secretariat considers the Transition Finance Attributes and decarbonization contribution methodologies outlined in this Note to be consistent with, and supportive of, the principles laid out by the G20 Sustainable Finance Working Group.⁴³

Principles

The GFANZ Secretariat has identified five principles commonly found in climate change guidance that support the credible analysis of Transition Finance and quantification of decarbonization contribution. The principles set out below are intended to be helpful considerations when using the concepts in this Note.

Be transparent and verifiable: Documenting, referencing, and publicly providing methods, data, assumptions, and information that are used increases transparency, supports others in their efforts, and allows for third-party verification or assurance where such methodologies exist.

Link to net-zero transition: Establishing the link and consistency between the portfolio, portfolio holding, and/or client identified as Transition Finance, and the contribution to an orderly net-zero transition across the whole economy contributes to the credibility of the process and relevance to decision-making.

Be consistent over time: Consistent application of the concepts in this Note, including documenting changes to data, methods, and assumption, allows for comparisons over time.

Balance conservativeness, science-based, and practicalities: Where possible and practicable, use of the best available, fact-based information developed through a scientific process helps identify probable variables and pathways for conservative analysis.

Support action in a timely manner: Prioritizing short- to medium-term emission reduction actions recognizes the need for achieving milestones by 2030 in order to preserve the best possible chance of averting environmental tipping points.

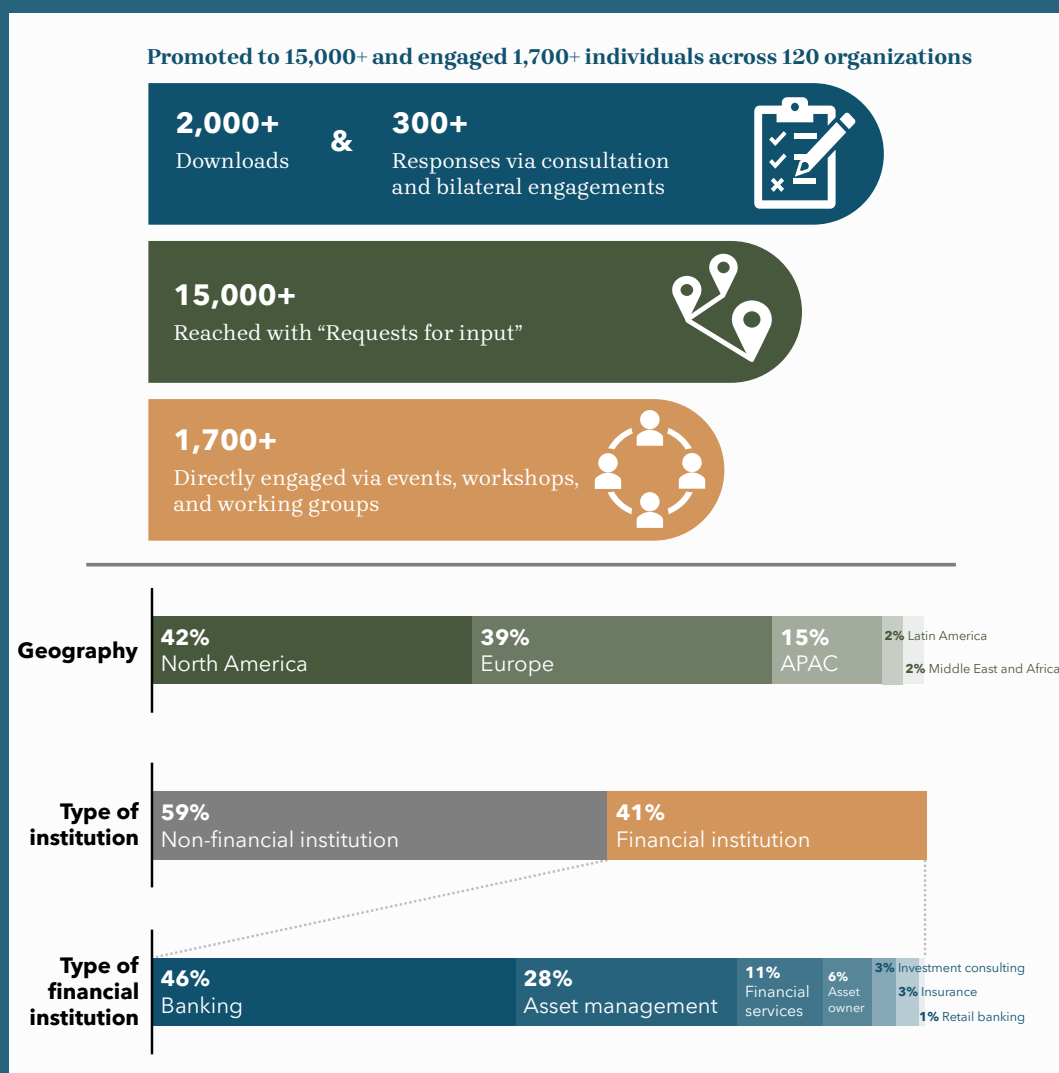
⁴³ G20 Sustainable Finance Working Group, [2022 G20 Sustainable Finance Report](#).

Consultation engagement

The development and review of the concepts and methodologies have been led by the GFANZ Secretariat and were informed by practitioners through extensive engagement with alliance secretariats; methodological providers; non-governmental organizations; the work of subject matter initiatives; and an open, public consultation. The technical information and considerations presented in this Note will inform the basis for further work in 2024 and beyond (refer to [Appendix C](#) for further details on select frameworks).

The GFANZ Secretariat is grateful for the participation of the financial industry, NGOs, and subject matter experts. The GFANZ Secretariat conducted four primary types of engagement to support this effort: public consultation, focus groups, outreach events, and webinars. Such engagement served two primary purposes: i) to raise the level of awareness and encourage stakeholders' engagement with GFANZ's work, and ii) to solicit and inform feedback on the proposed transition financing strategies and potential decarbonization contribution methodologies. In total, more than 1,700 individuals across 120+ organizations were included in the GFANZ Secretariat's outreach and engagement (see [Figure 5](#)).

Figure 5. Summary of consultation engagement



The remainder of this Note is structured into the following key sections:

Part I: Transition Finance outlines the Attributes to support the identification of financing and/or enabling initiatives across the four key transition financing strategies. The proposed Attributes outlined in this Note anchor on the original GFANZ four key transition financing strategies and draw on existing guidance and select frameworks that have relevant categories; maturity scales; and/or credibility indicators; as well as feedback received through engagement efforts described above. Financial institutions may apply the Attributes to assess clients and portfolio holdings in support of their net-zero commitment.

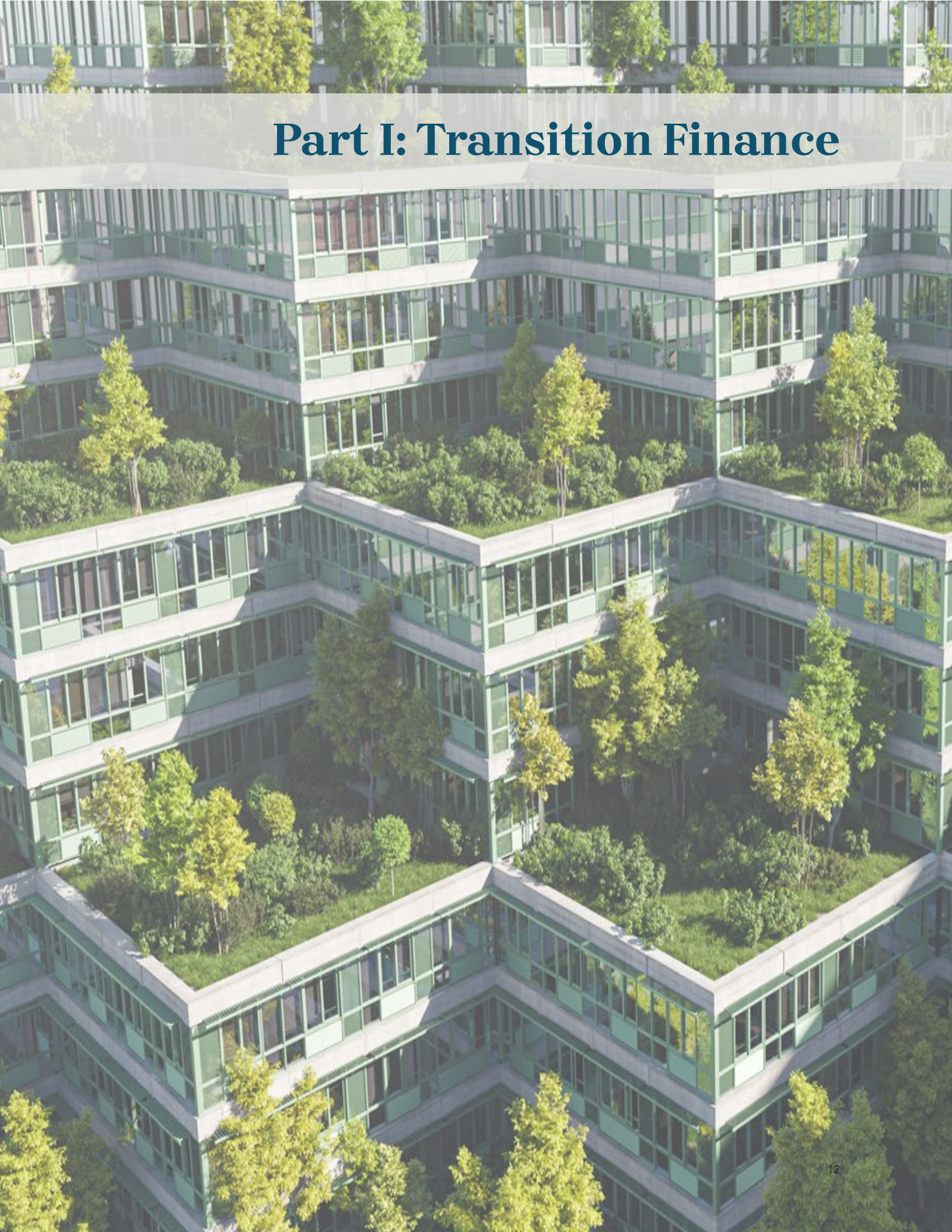
Part II: Potential decarbonization contribution methodologies outlines existing frameworks, concepts, and principles that may be applied in the development of a forward-looking decarbonization contribution measure – or Expected Emissions Reduction (EER) – for each of the four key transition financing strategies. This section reviews the technical considerations involved in deriving potential EER. The methodologies build on the concepts first proposed in the Consultative Document, incorporating technical feedback received through the open consultation and engagements with a range of experts and financial practitioners. It provides an analysis of the baseline considerations, forward-looking emissions projections, allocation, and other application considerations necessary for the EER calculation, as well as potential use case considerations.

The **Case study** section illustrates the potential application of the concepts outlined in Parts I and II across the four key transition financing strategies. The case study presents hypothetical financing opportunities and portfolio holdings across different companies in various sectors and illustrates how financial market participants might assess each opportunity or holding under the four key transition financing strategies and how the potential EER may be calculated. The case study utilizes real sector-level data and available pathways in the EER calculations.

The **Areas for further work** section highlights the critical aspects where additional refinement and development is needed to support best practices and promote widespread adoption. The GFANZ Secretariat recognizes that many topics and concepts covered in this Note are still nascent and/or require further development. While financial institutions in certain regions or sectors may be able to apply the full spectrum of considerations presented in this Note, others may encounter challenges due to the lack of data or the need for internal education and support for additional refinement.

The GFANZ Secretariat anticipates adoption and further development of the concepts presented in this Note will continue into 2024 and beyond. While Transition Finance and the four key transition financing strategies are gaining prominence, the concepts presented in Part II of this Note are generally in the early stages of both development and adoption and will require implementation and testing by financial practitioners. There is a need for more clarity and guidance to drive adoption and ensure broad market acceptance that facilitates greater capital mobilization in these important areas.

Part I: Transition Finance



Overview

Part I of this Note expands upon the GFANZ definition of Transition Finance and identifies principles-based Attributes that could be applied to screen potential opportunities, portfolio holdings, and clients for applicability of the four key transition financing strategies. Assessment of opportunities and holdings that fall under the four key transition financing strategies helps inform financial institutions' transition plan Implementation and Engagement Strategies. Financial institutions' distinct categorization of exposures forms the basis for calculation of other metrics and targets, including potential decarbonization contribution calculations outlined in [Part II](#).

To achieve the global net-zero goals that governments and private-sector firms have committed to, real-economy firms will need to decarbonize their business activities; climate solutions that provide low and zero-emission alternatives to GHG-emitting products and services will need to scale; and high-emitting activities that are not viable in a net-zero economy will need to be phased out. The private finance sector has the potential to mobilize capital and related services toward financing these activities for an orderly transition. Identification of such opportunities can inform capital allocation decisions and engagement strategies.

The GFANZ Financial Institution Net-zero Transition Plan (NZTP) report in 2022 identified four key transition financing strategies that comprise Transition Finance. This section outlines principles-based Attributes for each of the four key transition financing strategies; these build on the GFANZ definition of Transition Finance and are informed by a technical review of relevant frameworks, taxonomies, and guidance, as well as insights from an open consultation and direct feedback from industry practitioners and experts.

The principles-based approach to identify exposures across the four key transition financing strategies presented here is designed to support the assessment of the *nature of the activities and output of an asset, project, or entity* with two primary use cases in mind:

1. As a basis to scale Transition Finance: In an NZTP, a financial institution chooses priorities for its Implementation and Engagement Strategies.⁴⁴ Understanding the transition nature of opportunities and portfolio holdings provides key inputs for strategic activities including, but not limited to:
 - Setting strategic asset or portfolio allocation targets;
 - Stocktaking in support of capital mobilization decision-making, such as decisions to develop, expand, and measure different parts of portfolios; and
 - Engagement or stewardship, where financial institutions could then develop, resource, and execute dedicated engagement initiatives in support of clients and portfolio companies.

For example, a financial institution might prioritize financing support for Aligning entities. Identifying new financing opportunities that fall under Aligning could be a key input to meeting capital allocation targets

GFANZ definition of Transition Finance⁴⁴

Transition Finance: Investment, financing, insurance, and related products and services that are necessary to support an orderly, real-economy transition to net zero as described by the four key transition financing strategies that finance or enable:⁴⁵

1. **Climate Solutions:** Entities and activities that develop and scale climate solutions;
2. **Aligned:** Entities that are already aligned to a 1.5 degrees C pathway;
3. **Aligning:** Entities committed to transitioning in line with 1.5 degrees C-aligned pathways; or
4. **Managed Phaseout:** The accelerated managed phaseout of high-emitting physical assets.

⁴⁴ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁴⁵ The term "enable" as used here is distinct from "Enabler". Within this context, "finance and enable" pertains to the act of providing financial support or facilitating the four key transition financing strategies through related products and services. The definition of "Enabler" can be found later in this section under [Climate Solutions](#).

⁴⁶ Refer to GFANZ [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022. The NZTP framework suggests that in the Foundations theme, a financial institution will select an approach that prioritizes one or more of the four key transition financing strategies depending on its business characteristics. The priorities provide the context for the Implementation and Engagement Strategies.

established as part of its Implementation Strategy. Similarly, identifying existing portfolio holdings that have just started on their Aligning journey might be a key input to an Engagement Strategy to support entities in progressing along the alignment scale.

2. As a foundation for calculating metrics and targets, including potential decarbonization contributions such as Expected Emissions Reduction (EER) as outlined in [Part II](#). One of the three categories of metrics that is recommended by the GFANZ NZTP framework is real-economy emissions reductions, which complement portfolio GHG emissions. Under the GFANZ definition of Transition Finance, the four key transition financing strategies result in real-economy emissions reductions over time, but each may require considering different approaches to calculating its decarbonization contribution as reviewed in [Part II](#). As such, identification of opportunities, portfolio holdings, or clients by the four key transition financing strategies may be necessary before calculating a metric such as the EER.

For example, a financial institution can use the Attributes to identify assets as Climate Solutions. From this, the financial institution can express its exposure as a transition-based metric,⁴⁷ such as the total amount of financing for the identified assets. Further, the financial institution may choose to calculate a potential decarbonization estimate such as the EER for the same set of assets to complement the financed emissions metrics.

The use cases above can be applied in multiple ways depending on the financial institution's intent, objectives, capacity, and need for information. For example, the focus of the exercise may be an entire portfolio, a subset, or sector based. Furthermore, the financial institution may be interested in a point-in-time stock take or in tracking changes in a targeted initiative. These considerations are discussed under [Use case considerations](#).

Select existing frameworks

The Attributes outlined in this Note are intended to be pan-sector, globally applicable, and principles-based to reflect the developing nature and wide applicability of Transition Finance. The approaches reviewed and considered are designed to accommodate the use of other frameworks and taxonomies, while providing overarching guardrails for the definitions for Transition Finance, with other frameworks adding further granularity.

Other select frameworks, including those with relevant maturity scales and/or Transition Finance categories, were reviewed to inform the Attributes in this section. [Table 1](#) summarizes select frameworks and how relevant categories may be encompassed within the scope of, and/or where select frameworks have referenced, the GFANZ four key transition financing strategies explicitly.

Each of these frameworks were developed for a range of applications, scope, audiences, and use cases that may differ from one another and from this Note. Please refer to the listed organizations and their frameworks for specific guidance and further details.

- The table should not be interpreted as a comprehensive mapping of all listed frameworks with one another.
- The categories presented in this table should not be misconstrued as implying equivalence or substitutability between the listed frameworks and their categories, nor should it be interpreted that the guidance within the listed frameworks can replace one another, or directly correlate to the guidance provided in this Note.

⁴⁷ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans – Supplemental Information](#), November 2022.

Table 1. High-level mapping of select frameworks (listed in alphabetical order)

GFANZ FOUR KEY TRANSITION FINANCING STRATEGIES		CLIMATE SOLUTIONS	ALIGNED	ALIGNING	MANAGED PHASEOUT
Climate Bonds Initiative (CBI)	Climate Bonds Initiative (CBI) is an international organization that promotes investment in projects and assets, activities, and entities necessary in the transition to net zero. CBI focuses on mobilizing the bond market for climate change solutions by driving the quality of issuance through the development of science-based green definitions in line with the Paris Agreement. CBI administers the Climate Bonds Standard, a global certification scheme for sustainable debt and corporates. <i>Sources:</i> Transition Finance for Transforming Companies ; Financing Credible Transitions ; Checklist for Entity Certification	Near Zero (partial alignment) ⁴⁸		Pathway to Zero	Interim ⁴⁹ Stranded ⁵⁰
Investor Climate Action Plans (ICAPs) Expectations Ladder	The Investor Climate Action Plans Expectations Ladder, developed by the Investor Agenda, helps investors act on climate by providing a single, comprehensive framework for self-assessment and transition planning, which draws on existing initiatives and resources. The Expectations Ladder is inclusive and designed for all investors, regardless of where they are on their climate change journey. Because of this, the Expectations Ladder sets out a summary of encouraged actions over four tiers, from those beginning to think about climate (Tier 4) to the net zero standard-setters (Tier 1). This also allows investors to assess and report progress up the Ladder, accelerating their action in support of a net zero economy by 2050 or sooner. The Expectations Ladder references the GFANZ four key financing strategies. <i>Sources:</i> ICAPs Expectations Ladder	Climate Solutions	Aligned	Aligning	Managed Phaseout
The Net Zero Investment Framework (NZIF)	The Net Zero Investment Framework 1.0 and supplementary guidance defines methodologies and approaches for asset managers and asset owners to align portfolios to the goals of the Paris Agreement and maximize the contribution they can make to achieving net zero global emissions by 2050. 118 investors representing \$34 trillion in assets engaged in the development of the Net Zero Investment Framework between 2019-2021. Its development was led by the Institutional Investors Group on Climate Change (IIGCC) with the support of investor networks globally, Asia Investor Group on Climate Change (AIGCC), Ceres, Investor Group on Climate Change (IGCC). <i>Sources:</i> Net Zero Investment Framework: Implementation Guide and guidance for private equity and infrastructure ; IIGCC's Supplementary Guidance on Target Setting ; Investing in climate solutions: listed equity and corporate fixed income ; Investor Expectations of Corporate Transition Plans ; Net Zero Standards for Oil & Gas ; Diversified Mining ; Banks	Climate Solutions (Portfolio & asset class level recommendations)	Achieving Net Zero Aligned	Aligning towards a net zero pathway Committed to Aligning	Fossil Fuel Phase Out recommendations plus sector standards
Science Based Targets Initiative (SBTi)	The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). The SBTi helps companies establish science-based targets to reduce GHG emissions and transition to net-zero by defining and promoting best practices in emissions reductions and net-zero target setting in line with climate science. The SBTi is in the process of developing a Financial Institutions Net Zero (FINZ) Standard. The goal of the FINZ Standard will be to provide criteria and guidance that enable financial institutions to establish robust near-term and long-term targets consistent with achieving net zero emissions by 2050. <i>Sources:</i> SBTi Financial Institution Net Zero Standard	Net Zero Aligned/1.5 Aligned ⁵¹	1.5 Aligned Performance (medium-term) Net Zero Aligned (long-term)	1.5 Aligned Ambition (short-term) 1.5 Aligned Performance (medium-term)	Fossil Fuel Phaseout

⁴⁸ Near Zero as defined by CBI represents only those entities and assets that are at very low or near zero emissions. This would fall within the scope, as a sub-set, of GFANZ's Climate Solutions.

⁴⁹ Interim refers to assets that are necessary in the interim in the absence of long-term solutions but will need to be phased out before 2050.

⁵⁰ Definition of Stranded includes assets that should be phased out and is incompatible with net-zero.

⁵¹ Where the entity/activity is also a Climate Solution.

GFANZ FOUR KEY TRANSITION FINANCING STRATEGIES		CLIMATE SOLUTIONS	ALIGNED	ALIGNING	MANAGED PHASEOUT
Sustainable Markets Initiative Asset Manager and Asset Owner Task Force	<p>The Sustainable Markets Initiative (SMI) was launched in 2020 at the World Economic Forum Annual Meeting in Davos by King Charles III, then Prince of Wales. Several of the world's largest Asset Managers and Asset Owners have come together as members of the SMI Asset Manager and Asset Owner Task Force (AMAO) to work on actionable plans to help accelerate the world's transition to a sustainable future. The AMAO Task Force designed the Transition Categorisation Framework as a tool to help allocators of capital navigate the different types of transitioning assets. The purpose of the tool is to navigate the space between green assets and everything else, with the aim of increasing flows of investment into companies that will make a meaningful contribution to decarbonising the real economy, despite current high emissions.</p> <p>Sources: Sustainable Markets Initiative Asset Manager and Asset Owner Task Force Transition Categorization Framework⁵²</p>	Transitional Enabler	Transitioning Mitigating	Committed to Transition	Interim or Phaseout
Initiative Climat International (ICI) and Sustainable Markets Initiative Private Equity Taskforce – Private Markets Decarbonisation Roadmap (PMDR)	<p>The Private Markets Decarbonisation Roadmap was developed by the Initiative Climat International and the SMI Private Equity Taskforce as a way for Private Markets to communicate about their efforts on decarbonization. The PMDR was developed with the participation and insight from 250+ organizations across GPs, LPs and sustainability bodies.</p> <p>Sources: Private Markets Decarbonisation Roadmap</p>	Decarbonization Enablers (a subset of Climate Solutions)	Aligned	Aligning	No current pathway to Align ⁵³
Transition Plan Taskforce (TPT)	<p>The Transition Plan Taskforce (TPT) was launched by HM Treasury in April 2022 with a mandate to bring together leaders from industry, academia, and regulators to develop best practices for transition plan disclosures for finance and the real economy. The TPT Framework is designed to complement, and build on, the final climate-related disclosure standard (IFRS S2) issued by the ISSB. The TPT Framework also draws on GFANZ's framework and guidance for credible, comprehensive and comparable net zero transition planning and uses the same core components and structure.</p> <p>Sources: TPT Disclosure Framework; TPT Transition Planning Cycle</p>	Climate Solutions	Aligned	Aligning	Managed Phaseout
U.S. Department of the Treasury – Principles for Net-Zero Financing & Investment	<p>The U.S. Department of the Treasury released its Principles for Net-Zero Financing & Investment in September 2023 to underscore the importance and value of financial institutions' net-zero commitments, to promote consistency and credibility in financial institutions' approaches to these commitments, and to highlight and encourage greater adoption of emerging best practices pertaining to these commitments.</p> <p>Sources: Principles for Net-Zero Financing & Investment</p>	Climate Solutions	Aligned ⁵⁴	Aligning ⁵⁵	Managed Phaseout

⁵² The SMI framework includes a category of Aiming to Transition. This category is for companies that have no net-zero pathway at present but have a corporate commitment to a transition plan. This should not be bucketed with a company that is a high emitter but also has a feasible transition plan.

⁵³ PMDR's No current pathway to Align classification refers to Portfolio Companies (PortCos) with no pathway to align to the transition using existing technology. A PortCo can be classified as such if greater than 50% of its revenue is generated using high-emitting assets and it is not feasible to decarbonize through redevelopment, retrofitting, or replacement (including Managed Phaseout).

⁵⁴ Per reference to "aligned" and "aligning" under Principle 2 – Practice 1 – Transition finance.

⁵⁵ Per reference to "aligned" and "aligning" under Principle 2 – Practice 1 – Transition finance.

[Appendix C](#) provides further details on the background research conducted across select frameworks. These frameworks reflect a wide range of approaches currently in use, including high-level to granular maturity scales. Financial institutions are encouraged to utilize the Attributes in this Note along with other relevant frameworks in their assessment process, including sector-specific guidance;⁵⁶ regulatory frameworks; standards; KPIs (e.g., Green Asset Ratio, BNEF investment ratio, etc.); and taxonomies, where appropriate.

Regional and national taxonomies (e.g., EU Taxonomy, South African Green Finance Taxonomy) may be helpful in informing Climate Solutions at the sector and/or activity-level, and some taxonomies may include guidance on “transitional” activities⁵⁷ and outline areas for phaseout (e.g., taxonomies with a “traffic light” system such as the Singapore-Asia Taxonomy and the Bank of Thailand Taxonomy; taxonomies and taxonomical frameworks with decision flows, such as the Australian Sustainable Finance Institute Taxonomy; and the Canada Sustainable Finance Action Council Taxonomy Roadmap Report) and therefore may help inform Aligned/Aligning and Managed Phaseout exposures, respectively.

Box 1. The use of “green”, “sustainable”, “transitioning”, and “transition” labels

The GFANZ Secretariat recognizes that multiple terms such as “green”, “sustainable”, “transitioning”, and “transition” are currently used to describe climate-related financing. While significant overlap in meaning exists among not only these terms but also with the GFANZ definition of Transition Finance, there are differences in coverage and intent. For the purposes of this Note, any exposure (e.g., assets, projects, activities, entities, etc.) that meets the Attributes outlined in this Note would fall under the GFANZ definition of Transition Finance as set out in the NZTP framework.⁵⁸ The GFANZ Secretariat acknowledges that such exposures may also be described by one or more of the currently used terms.

For added clarity, the following are general areas where the GFANZ definition of Transition Finance may differ from other frameworks:

- **Whole-economy in scope:** The GFANZ definition of Transition Finance refers to areas of financing and support needed to *transition at the whole-economy* level. The definition encompasses areas that need to transition to net zero (Aligning, Managed Phaseout) as well as no/low-carbon alternatives and activities (Climate Solutions, Aligned) that are needed to achieve and maintain a net-zero economy.
- **Applies to high-emitting assets and entities:** While some frameworks and taxonomies may strictly associate Transition Finance (or similar terms) with either high-emitting or no/low-carbon assets, activities, and entities, the GFANZ definition and Attributes apply to *both* high-emitting and no/low-emitting assets and entities.
- **Applicable across all financial sub-sectors** (i.e., not specific to a particular asset class or product and service): The GFANZ Attributes for the four key transition financing strategies were designed to support assessment of the *nature of the activities and output of an asset/project or entity*. The definition and Attributes are pan-sector and applicable across asset classes; different products and services; and varying engagement and enabling initiatives.
- **Not region, sector, or activity specific:** The GFANZ definition of Transition Finance was not intended to serve as a formal taxonomy. The four key transition financing strategies and the Attributes are principles-based, intended to be globally applicable, and not restricted to specific industry sectors and activities.

⁵⁶ Such as, the NZAOA Target Setting Protocol, NZIF Implementation Guide, etc.

⁵⁷ “Transitional” activities refer to high-emitting activities that may serve as intermediary decarbonization options for an Aligning entity. See [Box 4](#).

⁵⁸ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

Transparency

As outlined in the [Scope and approach](#) section and throughout this section, transparency and verifiability of assumptions and application are essential to establish credibility of an assessment. While the GFANZ Secretariat encourages and emphasizes the importance of disclosure as a foundational element of net-zero commitments, the guidance in this Note is not intended to provide disclosure guidance. Each financial institution should determine specific content, location, and frequency for disclosing climate-related material.

Disclosure by real-economy entities and assets supports informed capital allocation decision-making by financial institutions. Disclosure by financial institutions offers valuable insights for real-economy companies as they pursue financing and associated services. As net-zero practices in finance continue to evolve and mature, increased transparency from all parties is needed.

For each of the four key transition financing strategies, this Note highlights important areas of transparency that could be considered to support informed decision-making by all parties, including the use of third-party validation for targets and alignment wherever available and appropriate to support and demonstrate the credibility and impartiality of the assessment process.

Regionality and sector-specific considerations

The role of regionality and sector-specific factors may affect the availability of net-zero solutions and commitments, particularly in the context of assessing credible Managed Phaseout opportunities. Different regions have distinct economic dynamics, regulatory and policy environments, and other factors that may influence or delay commitment. Sectoral pathways may not yet be available at a granular level in a given sector or region.

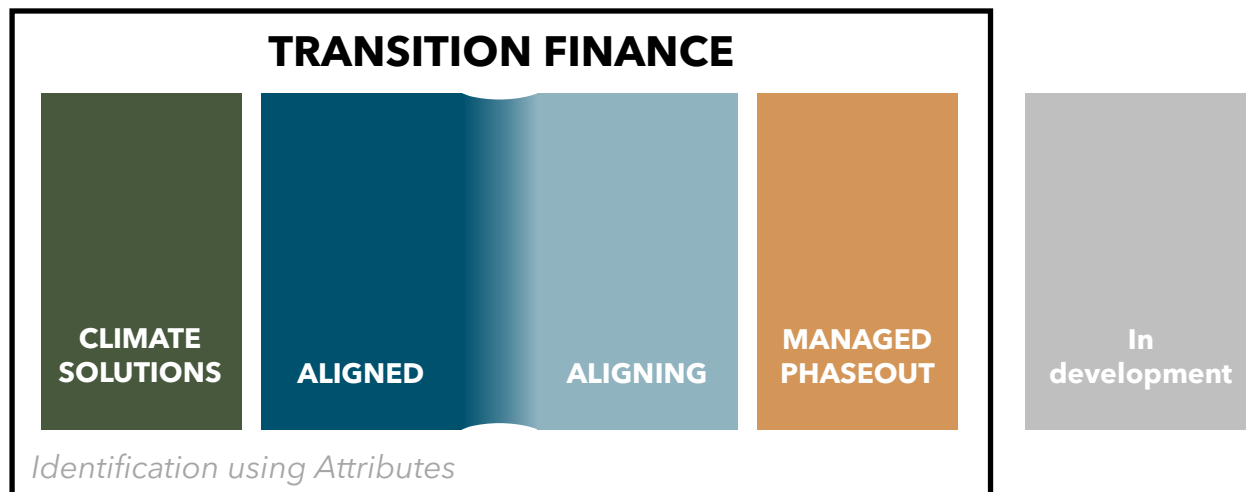
The approach and Attributes in this Note are principles-based and intended to be globally applicable and sector agnostic, but implementation of the concepts in this Note should consider sectoral pathways and region-specific pathways, which in some cases may be limited at this time, particularly in Emerging Markets and Developing Economies (EM&DEs). The GFANZ report [Guidance on Use of Sectoral Pathways for Financial Institutions](#) provides guidance and a framework to help financial institutions evaluate suitability of sectoral pathways in their transition planning process and implementation efforts.

This Note also recognizes that specific sectors may present higher potential to unlock emissions reductions at greater scale than others. Some organizations may opt to prioritize these sectors as they apply the approaches outlined in this Note. Nevertheless, all concepts and considerations outlined in this Note are designed to be applicable to all financial assets within a portfolio, regardless of the materiality of their contribution to the overall transition.

Please refer to [Areas for further work](#) for additional discussion of challenges with regions and sectors where data may be unavailable.

Attributes

Figure 6. The four key transition financing strategies



Please refer to the sub-sections below dedicated to each of the key transition financing strategies for details:

1. [Attributes for Climate Solutions](#)
2. [Attributes for Aligned and Aligning](#)
3. [Attributes for Managed Phaseout](#)

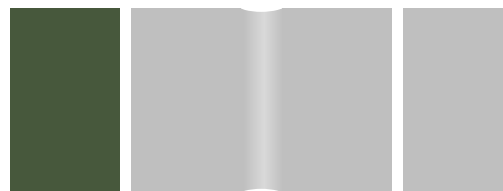
The Attributes in this Note are based on the state of climate-related data and methodologies current as of the time of writing. The GFANZ Secretariat recognizes the evolving nature of Transition Finance and the Attributes identified may not cover all possible permutations of Transition Finance. Please refer to [In development](#) for a discussion of potential groupings that do not currently meet the four key transition financing strategies but that may, after further engagement and actions, be included under Transition Finance.

The Attributes were developed without reference to a specific financing vehicle, sector, or region. GFANZ does not rule out that the Attributes might be applied as is, or with different structural modifications, by financial institutions. Additional considerations regarding application of Attributes are discussed in [Areas for further work](#).

Please refer to [Case study](#) for hypothetical examples that illustrate potential application of the Attributes to assess exposures under distinct strategies.

ATTRIBUTES

Attributes for Climate Solutions



Climate Solutions are integral to an orderly transition of the whole economic system. They represent and/or provide the necessary technology, products, infrastructure, and services that provide alternatives to high-emission products and services, supporting the alignment of entities and whole sectors. Existing Climate Solutions need to be scaled and new or nascent ones need to be developed and commercialized to maximize their potential impact. In some cases, Climate Solutions may be inherently low carbon themselves, but in other cases they are not, and so clarity on their identification and assessment is important.

Climate Solutions: Technologies, services, tools, or social and behavioral changes that directly contribute to the elimination, removal, or reduction of real-economy GHG emissions or that directly support the expansion of these solutions. These solutions include scaling up zero-carbon alternatives to high-emitting activities – a prerequisite to phasing out high-emitting assets – as well as nature-based solutions and carbon removal technologies.⁵⁹

This work refines understanding of Climate Solutions by setting out clearly that they can be divided into three sub-types that are necessary to support an orderly transition to a net-zero economy as well as the Attributes by which they can be identified:

1. **Solutions** are assets and entities that directly remove or reduce real-economy GHG emissions. Examples may include a pure play renewable energy solutions provider or the expansion of Carbon Capture, Utilization, and Storage (CCUS) technology by an energy company.
2. **Enablers** are assets and entities that indirectly contribute to, but are necessary for, emissions reductions by facilitating the deployment and scaling of Solutions or supporting the decarbonization of other actors' operations. Examples may include a battery maker that is a supplier to an electric vehicle manufacturer or the development of new or smart grid infrastructure.
3. **Nature-based solutions** represent actions to protect, sustainably manage, and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits.⁶⁰ In the context of net-zero transition, nature-based solutions (or nature-based climate solutions) are those that use natural systems to reduce GHG emissions and store carbon.⁶¹ Examples may include local communities restoring forests or an international hotel operator restoring mangrove forests on one of its properties. Please refer to [Areas for further work](#) for discussion of nature-based solutions.

With respect to the sub-types above, there could be project financing that focuses on the Solution or Enabler activity, e.g., financing for a company installing solar panels in its manufacturing plant, or general financing for entities whose whole business is centered around a Climate Solution, e.g., financing a local organization that works with communities to restore forests.

⁵⁹ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁶⁰ IUCN. [Guidance for using the IUCN Global Standard for Nature-based Solutions](#), 2020.

⁶¹ Adapted from The Nature Conservancy.

[Table 2](#) below summarizes the Attributes that identify Solutions and Enablers. The Attributes are designed to mobilize capital to the broad range of potential Solutions and Enablers that require financing to scale and operate, with guardrails to support focus on demonstrably contributing to emissions reductions and the transition to a net-zero economy.

Table 2. Solutions and Enablers – Summary of Attributes

APPLICATION: Assets, entities	
ATTRIBUTE	
A. Real-economy emissions reduction	Contribution to emissions reduction by: <ul style="list-style-type: none"> i. Demonstrating direct or indirect net contribution to real-economy emissions reductions in a significant⁶² manner; AND ii. Not leading to the extension (beyond net-zero pathways) of the lifetime emissions of assets identified for phaseout.
B. Expectations of net-zero alignment	Where the Climate Solutions itself is associated with emissions, reasonable efforts are planned or being made to address emissions reductions in the near and medium-term, and can be expected to align to a science-based pathway over time in a net-zero economy. When assessing for Attribute B, financial institutions are strongly encouraged to consider the Attributes under the Aligned and Aligning section.

Solutions and Enablers – Attribute details

A. Real-economy emissions reduction

The core of a Climate Solution is its potential to create real-economy emissions reductions. A Solution or Enabler should demonstrate a net positive impact on the overall decarbonization of the whole economy either directly or indirectly. Consistent with this concept, the production or use of the Solution or Enabler should not extend the lifetime emissions of assets identified for phaseout.

i. Demonstrating direct or indirect net contribution to real-economy emissions reductions in a significant manner

Climate Solutions can be developed, scaled, and deployed through multiple vehicles, such as an entity's business model dedicated to a specific Climate Solution(s); as a standalone project within a larger company; etc. In all cases, application of the Attribute focuses on establishing the end product or service's contribution to real-world emissions reductions. Factors to be considered in this regard, could include:

- If the use or deployment/use of the product or service directly results in negative or no/low real economy GHG emissions (**Solutions**)
- If the product or service is a necessary and a critical/unique component of the value chain of other actors that enable whole-economy GHG emissions reduction (**Enablers**)
- If the asset or entity provides products and services that support other actors in the real economy to decarbonize their own operations (**Solutions or Enablers**)

The definition of "significant" may vary,⁶³ depending on factors such as sector, region, pathways, and specific portfolio considerations. It is important for financial institutions to be transparent about the assumptions underlying their identification of an exposure as a Solution or Enabler based on the factors outlined above. Key considerations could include:

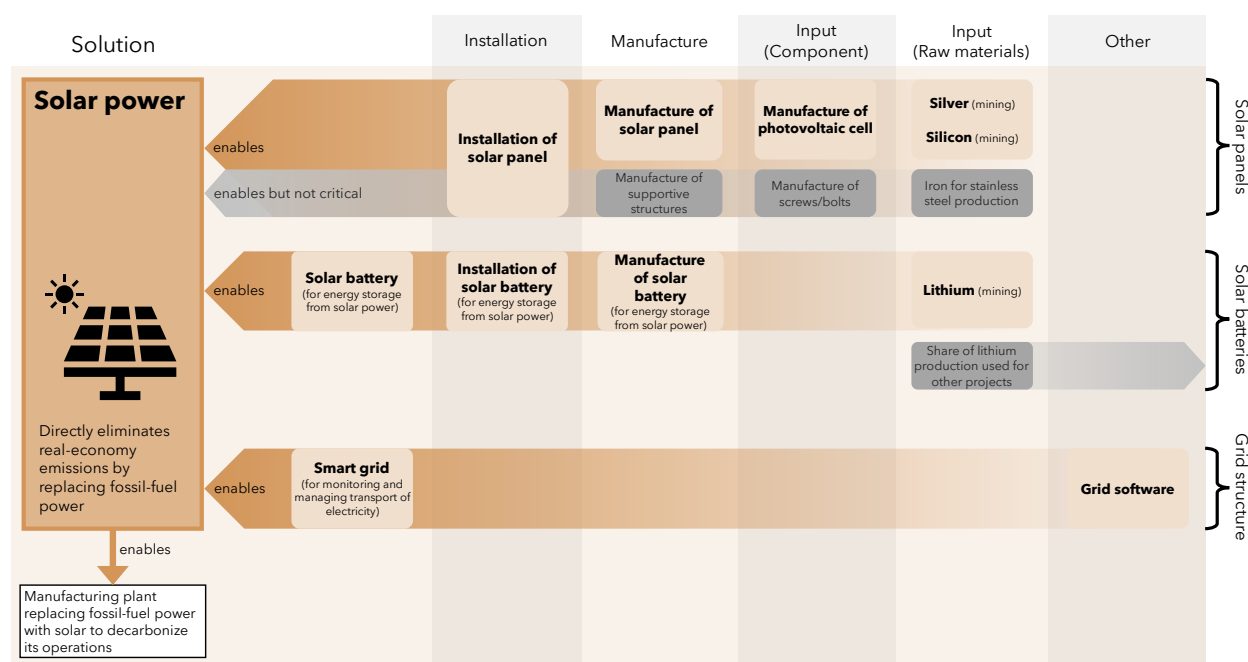
⁶² "Significant" should be considered within the appropriate context, such as the asset class or sector.

⁶³ For example, WBCSD's [Guidance on Avoided Emissions](#) refers to companies and activities that have "a direct and significant decarbonization impact".

- **GHG emissions reduction – actual and/or expected impact:**
 - Is the asset or entity's product and/or operation directly eliminating, removing, or reducing real-economy GHG emissions at the whole economy level? What high-emitting activity is the asset or entity's product and/or operations replacing as an alternative?
 - Is the opportunity/transaction/financing mechanism accounting for the asset or entity as a potential decarbonization lever to another company's operations?
- **Criticality/uniqueness:**
 - Does the asset or entity provide a meaningful or unique component to a Solution? Is the Solution operational without it?
 - Does the asset or entity provide critical raw materials to manufacture components to the Solution/Enabler? Are there alternatives that are accessible/available as substitutes?

The following figures provide illustrative examples of how these factors may be considered across value chains.

Figure 7. Solution or Enabler? Considerations along the value chain of solar panels



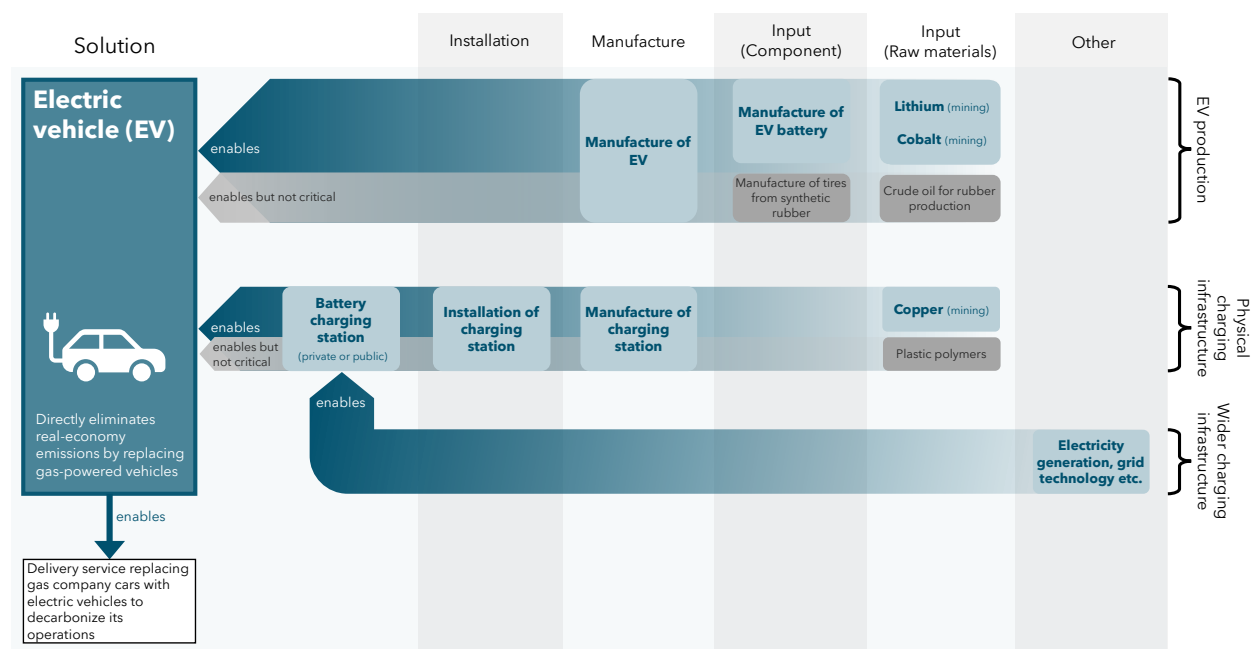
Solar power generation can be considered a Solution due to its direct decarbonization impact as an alternative to high-emitting energy sources. The value chain associated with the production of solar panels would be assessed to determine which parts might qualify as Enablers.

Three different parts of the value chain are illustrated above: the solar panels, the batteries, and the power distribution. In the cases of panels and batteries, the value chains begin with the mining of raw materials required for their manufacture. In the case of the grid, the grid software might also be considered an Enabler. Specific and critical infrastructure, components, and raw materials that are integral and uniquely critical to the manufacturing and operations of the Solution would likely be identified as Enablers (orange boxes), while more general parts and production processes that have readily available alternatives may not (grey boxes). For example, while iron for the production of screws and bolts for supportive structures of solar panels does feed into the installation of solar panels, the fact that none of these materials or components are unique and critical means that they would not generally qualify as Enablers.

With enabling mining operations, there may be significant environmental risks. A financial institution investing in a mining company as an Enabler may consider supporting the company in reducing its environmental footprint, for example, reducing emissions from its energy supply and supporting recycling efforts (to reduce the need for further mining). For the case of lithium mining for batteries, the financial institution could consider only a portion of the business that is directly supporting battery production as the Enabler.

In addition to these considerations for the upstream value chain, as an example, for a manufacturing plant that is replacing fossil-fuel power with solar to decarbonize its operations via installation of solar panels, project financing and support of the solar panels can be considered as an Enabler (because it decarbonizes other actors' operations).

Figure 8. Solution or Enabler? Considerations along a value chain of electric vehicles



Electric vehicles (EVs) can be considered a Solution due to their potential to replace internal-combustion engine vehicles, thus directly affecting emissions reductions. In the diagram above, multiple layers of the EV value chain can be screened for Enablers, in this case the diagram considers EV production, the physical charging infrastructure, and wider charging infrastructure. Both the manufacture of the EV itself, particularly its battery, and the installation of the supportive structures of charging stations could be considered as Enablers as they support the use of the EV. As certain materials, e.g., lithium, cobalt, and copper, are critical and necessary for batteries and charging infrastructure, mining companies for these raw materials may be considered Enablers, but financial institutions may wish to consider engaging with these companies to support reduction of environmental harm, e.g., via their energy sources. A further consideration highlighted in the example above is the electricity generation and grid technology required to feed into the charging infrastructure, tying this example in with the example on solar power and other renewable energy sources. As an example, in the downstream value chain of electric vehicles, project support for a delivery service replacing its gas fleet with electric vehicles can also be considered under Enablers since this financing activity actively enables the decarbonization of the company.

Demonstrating the link between the enabling product or service and the Solution may require additional analysis. The closer the link between the Enabler and the Solution, the easier it may be to judge the contribution and specificity of the enabling component to a Solution, e.g., a wind turbine blade or photovoltaic cell can only be used for wind turbines or solar panels, respectively, which are directly linked to clean energy.

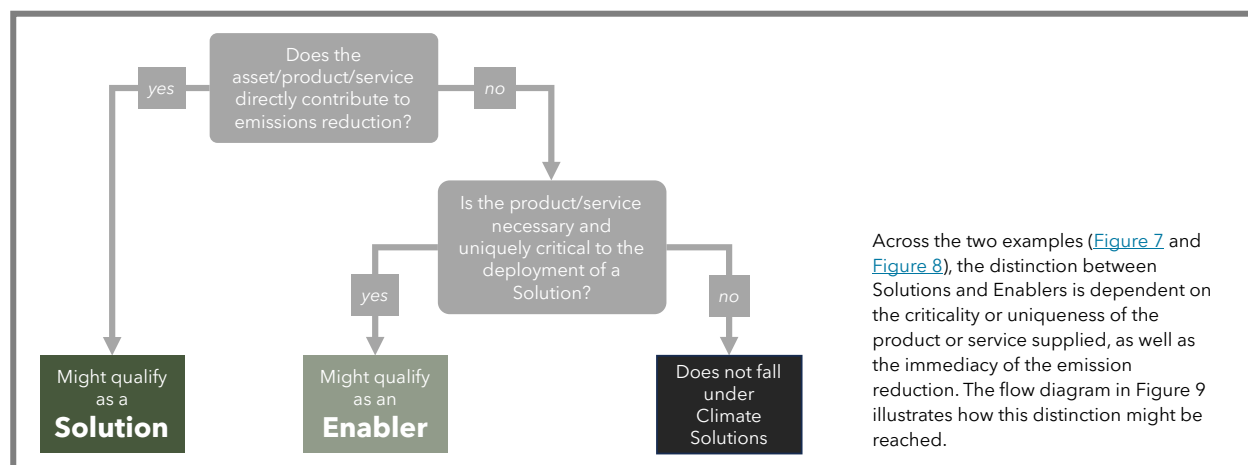
Where the Enabler is further up the value chain, but still is a critical component, the financial institution could consider identifying only the portion of the business that directly contributes to a Solution. For example, lithium is a necessary and critical component of EV batteries and EV batteries are a critical component to EVs, which directly produce lower emissions because they replace internal combustion engines. However, lithium has other applications (i.e., not for decarbonization purposes). Financial institutions, therefore, could consider accounting for only the portion of the Enabler entity's business that is supplying the lithium to EV battery companies, which the Enabler entity might show by disclosure of contracts or based on share of business.

Financial institutions may be able to adopt established industry/sector frameworks and taxonomies and/or employ their own proprietary methodologies, where appropriate, to support the assessment.

For enhanced rigor and credibility, financial institutions could consider:

- Obtaining third-party verification of the GHG emissions reduction contribution of the Solution
- Where possible, including only assets or entities that are not impeding the progress and development of other no/low-carbon initiatives
- Calculating and tracking against Expected Emissions Reduction (EER) measure(s), which is outlined in [Part II](#), as a complementary measure to capture and monitor the real-economy impact

Figure 9. Solution or Enabler? Uniqueness and criticality



ii. Not leading to the extension (beyond net-zero pathways) of the lifetime emissions of assets identified for phaseout

The development, scaling, or use of the Climate Solution should not prolong the lifetime emissions of associated assets that should be phased out (e.g., early retirement) according to science-based, net-zero pathways. Financial institutions may consider three scenarios where the Climate Solution may have detrimental effects:

- Where a Managed Phaseout strategy is already in place, the Climate Solution might impede the early retirement or execution of the phaseout plan of associated high-emitting operations (i.e., the use of a Solution should not jeopardize an associated asset's ability to achieve early retirement targets).
- Where a Managed Phaseout strategy has yet to be developed/implemented, the Climate Solution might create disincentives for implementing a Managed Phaseout strategy for associated high-emitting operations (i.e., the Solution should not prevent such phaseout strategy to be put into place by the associated asset).
- Where the development, scaling, or use of the Climate Solution requires the development of new high-emitting assets and/or operations that are likely to become stranded (and may have missed cut off dates for Managed Phaseout).⁶⁴

While the analysis may, in certain cases, present complexities that may preclude the consideration of relevant factors in scope, it is important for financial institutions to conduct the analysis on a best-efforts basis and be transparent regarding any key assumptions or potential limitations inherent in the process.

⁶⁴ Emerging frameworks for Managed Phaseout, including the GFANZ APAC guidelines, recognize that there may need to be cut off dates beyond which new high-emitting infrastructure would not qualify for Managed Phaseout that requires the use of public finance (with the aim of limiting moral hazard).

While Climate Solutions should not lead to the extension of the lifetime emissions of assets identified for phaseout, it is important to note that both strategies work in tandem in some cases, e.g., where a Climate Solution may be the replacement for an asset that is phased out.⁶⁵

Box 2. Considerations for early-stage technologies and businesses

Where financial institutions are evaluating early-stage Solutions or Enablers that have yet to demonstrate technological and/or economic viability, it is important for financial institutions to maintain transparency in their assessment against Attribute A. This entails consideration of the *forward-looking expectations* regarding decarbonization, as opposed to actual performance/demonstration of real-economy emissions reduction.

Financial institutions should consider clearly defining their assumptions and expectations related to decarbonization potential and associated economics of such technologies or businesses, tracking these variables over time to establish and uphold credibility in their assessments.

For enhanced rigor and credibility, financial institutions may consider establishing concrete timelines for reassessment against Attribute A, ensuring that their evaluations remain current and valid with the evolving technological and economic developments in the early-stage technologies or businesses.

B. Expectations of net-zero alignment

Solutions, and the connected Enablers, will need to scale to support the net-zero transition as outlined by science-based net-zero pathways. The scaling will likely result in increased emissions from activities such as manufacturing, transportation and distribution, and installation. Over the long term, as efficiencies are realized and technologies advance, it is reasonable to expect emissions to decrease and ensure the entity's operations are sustainable in a net-zero economy.

If the entity producing, scaling, installing, or operating the Solution or Enabler does not have a net-zero commitment yet, the entity should demonstrate intent to align its operational emissions to net-zero in the long term. Instances where commitments might not be in place include:

- Where the entity producing the Solution or Enabler has not yet committed to aligning its operational emissions to net zero. As Solutions scale, operational emissions are expected to increase.⁶⁶ An example could be an entity deriving the majority of its revenue from mining for copper and lithium, both of which are critical for scaling clean energy systems but are currently associated with significant emissions.⁶⁷
- Where an entity offers Climate Solutions already, but its internal operations may not yet be net-zero aligned even if business is not scaling. For example, an electric vehicle manufacturer supports the transition away from gas-powered cars, but its manufacturing process and operations are not net-zero aligned.
- Standalone projects, for example, to pilot or install Climate Solutions, may not have made a zero-emission commitment. While these projects are timebound, there may be emissions related to construction and other activities that could be mitigated, or the project steps may have low- or no-emission alternatives.

⁶⁵ Refer to the [Attributes for Managed Phaseout](#) section for related discussion.

⁶⁶ This should not be conflated with “transitional” activities mentioned under [Attributes for Aligned and Aligning](#). In the context of a “transitional” activity, the activity being assessed would be considered as an exposure that needs to be phased out in a net-zero economy. Under Attribute B, entities being considered are those that do not need to be phased out but should align with net zero over time.

⁶⁷ IEA, [The Role of Critical Minerals in Clean Energy Transitions](#), revised version, March 2022.

Under Attribute B, financial institutions should consider if the Climate Solution is making or planning to make reasonable efforts to address emissions reductions in the near and medium-term so that it can be expected to align to a science-based pathway over time in a net-zero economy. Considerations may include, but are not limited to:

- Does the Climate Solution have a net-zero commitment or ambition in place?
- Has the management team been engaged regarding the development of a net-zero transition plan?
- Is there a timeline and/or roadmap in place to articulate the entity's plan to establish targets and transition plans?
- Are there existing decarbonization initiatives in place that have been implemented?

Financial institutions may consider using the [Attributes for Aligned and Aligning](#) in the assessment of corporate entities over time. Additionally, financial institutions can complement this evaluation with actions in their own NZTP, such as Implementation and Engagement Strategies to support these entities in developing an NZTP and aligning their operations to net zero.

Areas for transparency considerations

Financial institutions are encouraged to be transparent in their assessment and in the assumptions they employ. Suggestions for key areas for transparency include, but are not limited to:

- References to the specific frameworks, guidance, or taxonomies that were used to define Solutions and Enablers, or to identify relevant sectors or activities, if any
- Identification of types of activities/sectors that are being classified as Solutions and Enablers and the rationale for the classifications
- Details about proprietary methodologies used in the assessment, if any
- Information about the rationale and assumptions related to the identification of assets and/or entities as Solutions or Enablers
- Separate segmentation of Solutions from Enablers, including further segmentation of Solutions and/or Enabler entities that are not yet aligned to net zero
- Separate segmentation and the rationale and assumptions made to support assessment of early-stage assets and/or entities as Solutions or Enablers

Sources and references to support the identification of Climate Solutions

Financial institutions are encouraged to draw upon existing frameworks and sources to identify and assess the activities and/or sectors and associated assets and entities that may be Climate Solutions. Such references may include (not exhaustive):

- Regional taxonomies (e.g., ASEAN Taxonomy)
- Legislative taxonomies (e.g., EU Taxonomy)
- Regulatory disclosure or labelling classification frameworks (e.g., SFDR)
- Scientific or intergovernmental frameworks and guidance (e.g., IPCC)
- Industry, sector, market-based frameworks (e.g., Asia Transition Finance Guidelines, CBI Taxonomy, Exponential Roadmap Initiative, IIGCC sector guidance)
- Climate solutions data platforms (e.g., NZAOA Target-Setting Protocol (TSP) Third Edition, Project Drawdown)
- Proprietary methodologies developed and implemented by the financial institution

Example 1: Belterra**Type:** Agroforestry**Sector(s):** Consumer staples – Nature-based solutions

Agroforestry, at scale, has the potential to sequester billions of tonnes of carbon each year; lower deforestation pressures; support biodiversity; increase agricultural productivity; reduce erosion; enhance food security; improve soil quality; and provide better livelihoods for farmers and farming communities.⁶⁸ Additionally, agroforestry practices reduce the need for fertilizers, pesticides, and other agrochemicals that harm surrounding flora and fauna.⁶⁹

Belterra is a B Corp certified company that partners with small and medium-sized farmers to promote agroforestry practices in degraded areas.⁷⁰ It helps producers transition to sustainable practices through the provision of credit, technical assistance, product commercialization, and connections to supply chain and off takers.⁷¹ Belterra was selected by UpLink, the World Economic Forum's innovation platform, as one of the 15 winners of the Trillion Trees: Bioeconomy in the Amazon challenge in 2022. Belterra recently teamed with Santander, Gaia, and Conexsus in a joint R\$17 million operation that will finance 4,500 producers without access to traditional lines of credit. Belterra's current area of operations include the Brazilian states of Rondonia, Mato Grosso, Para, Bahia, and Minas Gerais.

Example 2: BlocPower**Type:** Building efficiency**Sector(s):** Information technology

According to the IEA, it is essential that 20% of existing buildings are zero-carbon⁷² ready by 2030.⁷³ To that end, BlocPower aims to drastically cut the emissions profiles of buildings in America by using its SaaS analytics platform, BlocMaps, to identify key locations for efficiency improvement and retrofitting these buildings with a myriad of solutions. Retrofitting by BlocPower includes the use of climate solutions such as heat pumps and the integration of renewable energy sources. To date the company has completed green energy upgrades for more than 5,000 buildings.⁷⁴ BlocPower has also recently expanded the geographic coverage of BlocMaps to support its continued use by city municipalities and utilities across the United States to develop and implement data-driven, equitable, decarbonization strategies.⁷⁵

⁶⁸ Capital for Climate. [Agroforestry](#), November 2023.

⁶⁹ Capital for Climate. [Agroforestry](#), November 2023.

⁷⁰ Capital for Climate. [Belterra](#), November 2023.

⁷¹ Capital for Climate. [Belterra](#), November 2023.

⁷² "Zero-carbon-ready buildings are highly energy-efficient and resilient buildings that either use renewable energy directly, or rely on a source of energy supply that can be fully decarbonized, such as electricity or district energy. The zero-carbon-ready concept includes both operational and embodied emissions." IEA. [Buildings](#), July 2023.

⁷³ IEA. [Buildings](#), July 2023.

⁷⁴ BlocPower. [BlocPower Announces \\$150 million Financing, is honored by Vice President Harris, Unveils Corporate Rebrand](#), March 2023.

⁷⁵ BlocPower. [BlocPower Announces \\$150 million Financing, is honored by Vice President Harris, Unveils Corporate Rebrand](#), March 2023.

Example 3: JinkoSolar**Type:** Solar**Sector(s):** Energy

In 2022, solar photo-voltaics (PV) experienced the largest absolute growth of all renewable energy sources.⁷⁶ By 2027, the IEA projects the installed power capacity of solar PV to be the largest of any power source globally, greater than natural gas or coal.⁷⁷

JinkoSolar, one of the biggest solar technology companies in the world, operates across the heart of the photo-voltaic industry chain and is a key player in driving the growth of this critical climate solution. JinkoSolar's focus is on the integrated research, development, and manufacturing of photo-voltaic products. They serve over 180 countries and regions worldwide, catering to more than 3,000 customers, with cumulative module shipments exceeding 190 GW.⁷⁸ By the end of 2023, the company's monocrystalline silicon wafer, cell, and module production capacity will reach 85GW, 90GW, and 110GW respectively.⁷⁹

Example 4: Li-Cycle**Type:** Rare earth metal recycling**Sector(s):** Materials

Lithium is a critical component of EV batteries, and EV batteries are a critical component to EVs, which directly lower emissions through the replacement of internal combustion engines. Lithium is also essential for the storage of renewable energy. Accordingly, the demand for batteries is set to grow exponentially over the next decade.⁸⁰ The impending increase in demand will make scaling the recycling of lithium-ion batteries even more important, not only to reduce environmental harm from traditional mining practices but also to help further cut the cost of battery and EV production.⁸¹ While many countries are eager to increase domestic supply for these critical materials, rising costs and unclear policy priorities risk slowing this critical component of the battery and EV supply chain.⁸² Recycling lithium-ion batteries is essential to the net-zero transition for the transportation and energy sectors.

Established in 2016, Li-Cycle is North America's largest pure-play lithium-ion battery recycler with a rapidly growing business in Europe.⁸³ The company leverages its patented Spoke & Hub Technologies™ to recover critical materials from various types of lithium-ion batteries.⁸⁴ Li-Cycle builds a closed-loop battery supply-chain around this essential component of EV's by recycling all formats of lithium-ion batteries with up to 95% efficiency and no creation of landfill waste in the process.⁸⁵

⁷⁶ IEA. [Solar PV](#), July 2023.

⁷⁷ IEA. [Solar PV](#), July 2023.

⁷⁸ JinkoSolar. [About Page](#), November 2023.

⁷⁹ JinkoSolar. [About Page](#), November 2023.

⁸⁰ Scientific American. [Recycled Lithium-Ion Batteries Can Perform Better Than New Ones](#), February 2022.

⁸¹ Chemical & Engineering News. [It's time to get serious about recycling lithium-ion batteries](#), July 2019.

⁸² BNN Bloomberg. [Biden-Backed Battery Firm Plummets After Pausing Construction](#), October 2023.

⁸³ Li-Cycle. [About Page](#), November 2023.

⁸⁴ Li-Cycle. [About Page](#), November 2023.

⁸⁵ Li-Cycle. [About Page](#), November 2023.

Example 5: Loop**Type:** Electric vehicle charging infrastructure**Sector(s):** Utilities and information technology

One fifth of vehicles sold by 2025 will be electric, dramatically reducing the transportation sector's total emissions.⁸⁶ Charging EVs efficiently will further decrease emissions and also provide a grid resource through optimization (according to RMI, charging EVs at the right times can equate to emissions reductions equal to the removal of tens of thousands of high emitting vehicles from the road).⁸⁷ The EV switch however presents a unique array of challenges. Research shows that the US, for example, will need to triple charging installations to meet the rising number of EVs.⁸⁸

To address rapidly growing demand, Loop has built a suite of EV charging infrastructure solutions across hardware, software, and maintenance. Their level 2 and DC fast charging work for any use case or building type and their cloud-based public and private network software solution reduces costs for site owners.⁸⁹ Loop also supports installation and operation services through their network of electrical contractors.⁹⁰ Ultimately, by focusing on where consumers spend their time, Loop is able to support energy optimization and passive charging for commercial, multifamily, and residential properties.⁹¹

Example 6: Grids in high-emissions power systems**Type:** Grid**Sector(s):** Energy

Grids transport the electricity generation produced by the underlying generation equipment and, as such, take on the emissions intensity of the average power generation of a connected grid. At the same time, grids are an essential Enabler of integrating renewable energy, where renewable resources are located far from demand. Additionally, variable renewable energy like solar PV and wind benefit from large, connected grids to take advantage of resource diversity and diversification of demand patterns – and by extension – contribute indirectly to real economy emissions reductions in a significant way. Grids take longer to deploy than the technology they enable and, as such, they require financing before the direct solution for decarbonization like renewable energy can be deployed. In grids that start off being high emission, it is important that there is a way to look ahead, to assess decarbonization benefits of investment; it is also important that a credible energy transition plan is developed.

As an example, in Indonesia, currently ~80% of electricity generation comes from fossil fuels and investing in transmission grids without any expected change to this fossil fuel generation ratio will not be compatible with Transition Finance.⁹² However, under the Just Energy Transition Partnership, Indonesia plans to increase the share of renewable generation in the grid to 44% by 2030 up from 20% in 2025. Investment in the grid is essential to facilitate the higher share of renewable energy.⁹³ This is an example where looking ahead to the anticipated decarbonization benefits and the development of a credible transition plan support identification of financing to grids as an Enabler.

Updated guidance for grids may be needed globally because some current guidance for grid investment is backward-looking and focused on the past grid emission intensity.⁹⁴ This does not recognize the critical role of grids in enabling the decarbonization of high emission power systems, creating a risk that the flow of Transition Finance is impeded. It can also restrict the flow of finance to grids in countries where such infrastructure has been lacking previously (such that there is no historical data).

⁸⁶ Reference and copy provided by Fifth Wall, 2023.

⁸⁷ RMI. [Reality Check: More EVs Can Mean Fewer Emissions](#), March 2022.

⁸⁸ USAFacts.org. [How many electric vehicle charging stations are there in the US?](#), March 2023.

⁸⁹ Loop. [About Page](#), November 2023.

⁹⁰ Loop. [About Page](#), November 2023.

⁹¹ Reference and copy provided by Fifth Wall, 2023.

⁹² JETP Indonesia. [JETP Comprehensive Investment and Policy Plan](#), November 2023.

⁹³ JETP Indonesia. [JETP Comprehensive Investment and Policy Plan](#), November 2023.

⁹⁴ For example, [European Commission, EU Taxonomy Navigator, November 2023](#).

ATTRIBUTES

Attributes for Aligned and Aligning



Within GFANZ's four key transition financing strategies, two strategies represent stages in an entity's transition toward net zero: Aligned and Aligning. Both strategies are widely recognized within a variety of other established frameworks as part of alignment maturity scales,⁹⁶ and they delineate an entity's commitment and progress toward achieving operations that are consistent with a net-zero pathway.

Aligned: Financing or enabling entities that are already aligned to a 1.5 degrees C pathway. This strategy supports climate leaders and signals that the financial sector is seeking transition alignment behavior from the real-economy companies with which it does business.⁹⁵

The Aligned strategy includes those entities that are well on track or have successfully transformed or repositioned their operations to be net-zero aligned. For example, this may include a power company that has demonstrated performance through a consistent track record of meeting its targets and tracking on the pathway to delivering low carbon power, with a robust and detailed transition plan that is being implemented as planned and validated by a third-party accreditation organization.

Aligning: Financing or enabling entities committed to transitioning in line with 1.5 degrees C-aligned pathways. This strategy supports both high-emitting and low-emitting firms that have robust net-zero transition plans, set targets aligned to sectoral pathways, and implement changes in their business to deliver on their net-zero targets.⁹⁷

At the core of the Aligning strategy are entities that currently fall short of full alignment with net-zero objectives yet demonstrate progress and are converging toward net-zero. Examples may include a high-emitting company that has made a net-zero commitment, is developing a transition plan, is converging toward – but has not yet demonstrated alignment to – a 1.5 degrees C pathway, and is expected to meet the interim targets set.

The Attributes presented in this section build on the original GFANZ definitions and incorporate guidance from a range of relevant frameworks, including those that consider alignment on a maturity scale and those that present credibility indicators in their approach to alignment categories or stages.⁹⁸ The application of the Attributes outlined below does not preclude the use of other frameworks, which in many cases offer more granular sector and use-case specific considerations for assessments.

⁹⁵ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁹⁶ For example, the IIGCC Net-Zero Investment Framework, Sustainable Markets Initiative (SMI) Asset Manager and Asset Owner Task Force Transition Categorization Framework, and SMI Energy Transition Task Force Framework for transitioning companies.

⁹⁷ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

⁹⁸ The select frameworks reviewed are summarized in [Appendix C](#).

Table 3. Aligned and Aligning – Summary of Attributes

APPLICATION: Entities		
ATTRIBUTE	ALIGNED	ALIGNING
A. Established net-zero commitment/ambition	Commitment/ambition to reach net zero, specifying science-based pathways/benchmarks. ⁹⁹	
B. Established net-zero targets (set to pathway)	Emissions-based KPIs: Scope 1 and 2; Scope 3 if material; At a minimum, short- to medium-term interim targets established between time of commitment and net zero. ¹⁰⁰	
C. Net-zero transition plan	Established and being implemented; Consider including current and planned low-carbon capex and opex (where available).	Developing; Consider including planned low-carbon capex and opex (where available).
D. Additional KPIs (Where applicable)	Where applicable, consider tracking low-carbon revenues, planned low-carbon capex and opex, other financial metrics as proxy for alignment (where available); benchmarking/accreditation scores by third-party platforms; just transition considerations and KPIs, ¹⁰¹ etc. The EER metrics introduced in Part II offers a complementary KPI to monitor in the context of alignment.	
E. Performance	Actual performance against established targets/KPIs and alignment to pathways – at least two continuous years.	Demonstrating increasingly meaningful progress toward established targets/KPIs and convergence toward pathways (e.g., expected convergence to interim targets).

Aligned and Aligning – Attribute details

A. Established net-zero commitment/ambition

Both Aligned and Aligning entities should have commitments to transition to net zero. A commitment signals intent and support from those that govern the entity, e.g., the Board of Directors.

Public commitments provide added credibility and help to distinguish between emissions reductions that may be a result of exogenous factors (e.g., a market downturn) versus a strategic plan of action.

B. Established net-zero targets (set to pathway)

A net-zero commitment should be underpinned by specific short-, medium-, and long-term targets that illustrate the projected trajectory of the entity. Targets should consider Scope 1, 2 and – where material – Scope 3 and may follow industry target-setting guidance as relevant to the sector, region, or other initiatives.¹⁰²

⁹⁹ Based on science-based net zero pathways, including those that may be region or sector-specific. For sectoral pathways, see [GFANZ Guidance on Use of Sectoral Pathways for Financial Institutions](#) for further guidance.

¹⁰⁰ The GFANZ Secretariat recognizes that many entities may be in the early stages of implementing their net-zero commitment, and that there is an interim phase where entities may be committed and taking significant steps in establishing targets. Financial institutions are encouraged to capture these exposures separately under “In development” and incorporate actions to support such entities’ progression on the alignment scale as part of the financial institution’s net-zero transition plan. Please refer to [In development](#) for details.

¹⁰¹ For example, investments in human capital development in skills/training; financial considerations regarding affordability of products and services, etc.

¹⁰² For example, targets established in accordance with financial sector-specific alliance target-setting protocols, UN Race to Zero criteria, SBTi, ACT, CA100+, etc. Refer to the GFANZ [Expectations for Real-economy Transition Plans](#) report for further guidance.

Targets should include milestones, including at a minimum, short- to medium-term interim targets established between the time of commitment and net zero that are aligned to net-zero science-based pathways/benchmarks¹⁰³ (e.g., 2030 or 2035 interim targets).

Where available, third-party verification of the targets adds another layer of credibility.

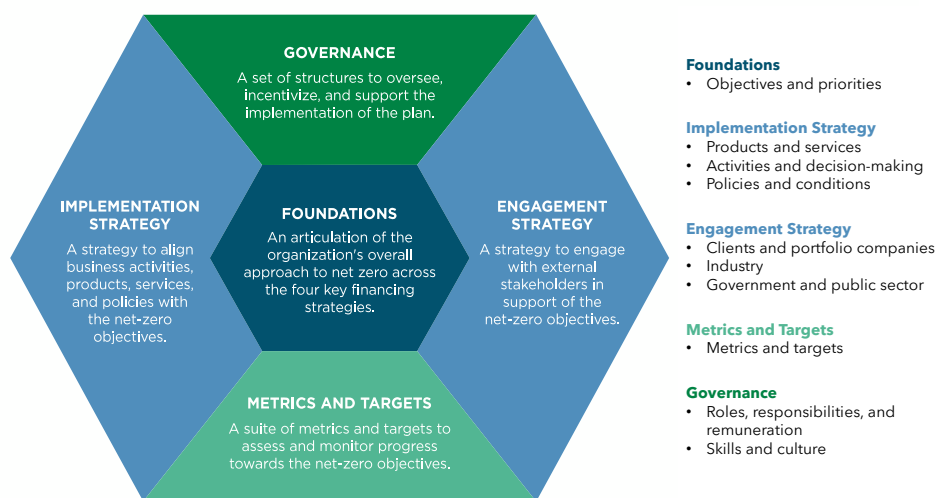
The GFANZ Secretariat recognizes that many entities may be in the early stages of implementing their net-zero commitment, and that there is an interim phase where entities may be committed and taking significant steps in establishing targets. Financial institutions are encouraged to capture these exposures separately under “In development” and incorporate actions to support such entities’ progression on the alignment scale as part of the financial institution’s net-zero transition plan. Please refer to [In development](#) for details.

Please refer to [Appendix D](#) for excerpts from the GFANZ [Guidance on Use of Sectoral Pathways for Financial Institutions](#) that outlines considerations on the use of sectoral pathways.

C. Net-zero transition plan

Both Aligned and Aligning entities should have a net-zero transition plan but may be at different stages of development and implementation. As outlined in the GFANZ Net-zero Transition Plan framework,¹⁰⁴ a credible transition plan comprises five themes: Foundations, Implementation Strategy, Engagement Strategy, Metrics and Targets, and Governance – and ten components, as represented in [Figure 10](#).

Figure 10. The five themes and ten components of credible transition plans¹⁰⁵



The GFANZ NZTP framework's ten components are divided into five themes. The same themes and components are mirrored in the GFANZ [Expectations for Real-economy Transition Plans](#) report, with the exception of the Clients and portfolio companies component of the Engagement Strategy theme, which – in the case of the real-economy guidance – corresponds to the Value chain component.

¹⁰³ Based on science-based net zero pathways, including those that may be region or sector-specific. For sectoral pathways, see [GFANZ Guidance on Use of Sectoral Pathways for Financial Institutions](#) for further guidance.

¹⁰⁴ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022; GFANZ, [Expectations for Real-economy Transition Plans](#), September 2022.

¹⁰⁵ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

The Attribute for an Aligned entity includes an established transition plan that is being implemented. Where sufficient data is available, including current and planned low-carbon capex and opex as financial metrics could be used to add credibility to the transition planning effort.¹⁰⁶

This Note acknowledges that developing and maintaining a comprehensive transition plan requires both time and resources. As the focus of Aligning is on progress toward developing a full implementation with an emphasis on near-term action, an Aligning entity could be expected to be in the process of developing a comprehensive net-zero transition plan, considering the inclusion of planned low-carbon capex and opex,¹⁰⁷ a helpful addition for credibility where available and feasible. Financial institutions are strongly encouraged to work with Aligning entities in establishing net-zero transition plans within a reasonable time frame, i.e., established in time for the transition plan to be executed to support meeting interim targets. Financial institutions should consider incorporating specific timelines for establishing a net-zero transition plan within their Engagement Strategy for added clarity (e.g., aim to support Aligning entities to establish a net-zero transition plan within a year from the start of engagement).¹⁰⁸

In instances where the EER is being considered as a complementary KPI, financial institutions are strongly encouraged to ensure the Aligning entity has an established net-zero transition plan that serves as the basis to support the assumptions used in the EER calculation.

The GFANZ Secretariat recognizes that net-zero transition plans may not be published as a standalone plan and may be integrated into a variety of other corporate reports, such as climate, TCFD, sustainability, corporate strategy, or on company websites. In the absence of a standalone transition plan, financial institutions could evaluate entities and their business and operations against the five themes and ten components of the GFANZ NZTP framework.¹⁰⁹ This evaluation may provide valuable insights into an entity's current alignment status; it may identify areas where support and progress are needed; and it may support identification of the entity as Aligning, despite not having a full net-zero transition plan.¹¹⁰

Box 3. Net-zero transition plan considerations for Small and Medium-sized Enterprises (SMEs)

To support the development of net-zero transition plans by SMEs, GFANZ has outlined the most critical components of a transition plan in section 5.1 – *Prioritization of Components for SMEs* in the [Expectations for Real-economy Transition Plans](#) report. Where national or local regulations and requirements exist, it is important that SMEs develop their transition plans accordingly, ensuring compliance and relevance to specific regional and jurisdictional mandates. In such instances, the priority components identified in the GFANZ report may be utilized as a complementary reference in supporting the development of net-zero transition plans.

It is expected that there may be exposures that move between Aligned and Aligning as the underlying companies and activities make progress toward getting on a net-zero aligned pathway. Transition plans become especially relevant when organizations deviate from expected pathways (see [Appendix D](#)), allowing financial institutions to assess whether or not the entity will be able to course-correct and re-converge with the original pathway, or if it is likely entirely off track and consequently falling out of alignment. For this reason, net-zero transition plans should

¹⁰⁶ For more information on (financial) metrics that would be important elements in transition plans of companies in the real economy, please refer to [Expectations for Real-economy Transition Plans](#).

¹⁰⁷ Including planned capex and opex further solidifies commitment to the execution of the net-zero transition plan via allocation of necessary financial resources to support implementation.

¹⁰⁸ Timing may vary, subject to regional and/or sector-specific considerations. The appropriate timing for the net-zero transition plan to be established has been identified as an [Areas for further work](#).

¹⁰⁹ Refer to [Appendix B](#) for an overview of the framework. For guidance on its application to real-economy companies, refer to the GFANZ report [Expectations for Real-economy Transition Plans](#).

¹¹⁰ Firms may find it helpful to refer to Table 15 in the GFANZ [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#) report for a list of indicators and considerations for assessment in instances where net-zero transition plans may not be readily available.

be updated regularly (e.g., TCFD guidance specifies that plans should be reported annually, reviewed at least every five years, and updated if necessary) to incorporate and adapt to changes in the companies' business models and/or market dynamics.

If an entity consistently remains in Aligning over a prolonged period, and it is evident that progress and execution of its net-zero transition plan are not sufficient and/or off track in relation to science-based pathways, financial institutions will be faced with a decision and would need to use discretion to determine whether the entity may remain as Aligning or whether it should be removed from the group. Increasingly, as they are more widely adopted, the net-zero transition plan will be an important mechanism that can offer information needed to make the decision and provides a basis to hold entities accountable for their commitments over time.

D. Additional KPIs

Beyond the emissions-based targets and KPIs that are crucial for tracking alignment to pathways, a suite of additional, complementary KPIs should be considered to convey an entity's overall alignment maturity of companies, activities, etc. In particular, the Metrics and Targets theme from the GFANZ [Expectations for Real-economy Transition Plans](#) report suggests metrics, such as low-carbon capex and opex and low-carbon revenues, which demonstrate how the transition and alignment is embedded within a business model. Through these KPIs, an entity can provide more detail on the robustness of its alignment and its continued ability to meet future targets. Scores from benchmarking or accreditation tools could also be considered as additional KPIs to support and track an organization's alignment status, where available.

Financial institutions are encouraged to include just transition considerations in the assessment of an entity's alignment status to ensure that impact and dependencies to communities and workers are being accounted for.¹¹¹

Where the assessment is possible, the EER metrics introduced in [Part II](#) offers a complementary KPI to monitor in the context of alignment, since it may be used to specifically articulate and track alignment performance (see Attribute E below).

E. Performance

The performance against the targets and Additional KPIs should be demonstrated over time, considering factors such as the length of the financial relationship, historical and projected cumulative emissions, contribution to the remaining global carbon budget, etc.

An Aligning entity may be at a lower maturity level but may still demonstrate increasingly meaningful progress toward its stated targets and convergence toward its pathways. For example, this can be shown by reference to the fact that the entity is on track and/or expected to meet its short to medium interim targets (e.g., 2030, 2035 interim targets; based on the entity's net-zero transition plan or equivalent internal assessment). Over what timescales this progress is demonstrated, and what level of performance can be considered significant progress will depend on a multitude of factors but should generally be consistent with science-based pathways and the objectives and targets established and/or articulated within the net-zero transition plan.

Supporting entities toward alignment

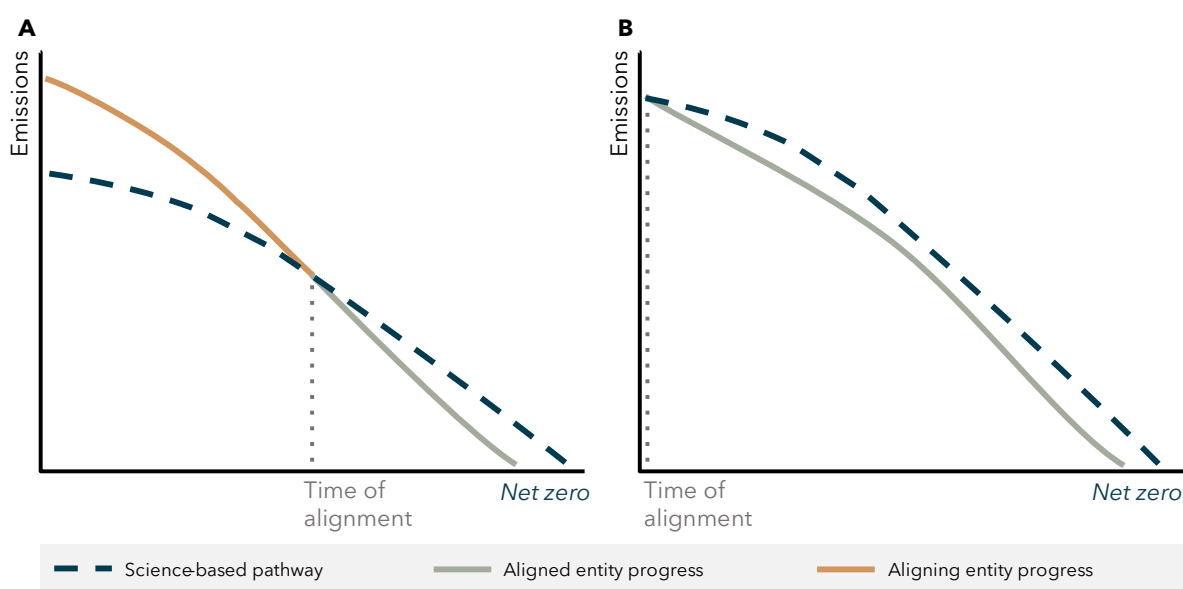
There may be entities that are taking steps toward alignment but have not satisfied the full set of Aligned/Aligning Attributes. Please refer to the [In development](#) section of this Note for sub-groupings and potential actions that financial institutions could consider taking. Financial institutions may wish to consider the enabling factors that would move more entities into the Aligned and Aligning groups.

¹¹¹ Just transition was highlighted as an important area of consideration in GFANZ NZTP framework. Financial institutions are encouraged to reference existing international frameworks such as the [World Benchmarking Alliance just transition benchmark](#) and Grantham Research Institute, LSE's [Making Transition Plans Just](#) (October 2022) for further guidance.

An Aligned entity can demonstrate active alignment to relevant pathways and is meeting its benchmarks robustly with a two-year track record of aligning performance. Financial institutions are strongly encouraged to perform assessments or reviews of the Aligned performance on an annual basis.

[Figure 11](#) sets out hypothetical examples illustrating potential alignment pathways for entities in the reference cases: Aligned and Aligning. As such, the figures do not attempt to capture the intricacies of carbon budgets, regional, or sector specific considerations. Note that in order to provide an intuitive understanding of the performance attribute and some potential challenges, these illustrations show idealized scenarios where full data is available to represent an entity's progress toward a clear reference pathway. Financial institutions will be limited to a point-in-time view of entities' performance and should use best practice approaches to gather performance data to make their assessment.

Figure 11. Hypothetical illustrations of the reference cases Aligned and Aligning performance



[Figure 11](#) represents the reference cases for an entity progressing from Aligning into Aligned status and an entity that could be considered Aligned from the start of the engagement. The illustrative example in **A** shows a hypothetical Aligning entity's progress and convergence toward a pathway and interim targets. Such an entity could be identified as Aligning if it meets the other Attributes. The entity may be considered Aligned if it also meets all of the other Attributes for the Aligned strategy. Example **B** illustrates a hypothetical entity that tracks on a net-zero pathway. In this scenario, the entity could be identified as Aligned at the start of engagement with the financial institution if it meets the other Attributes. The entity remains Aligned for the entire time horizon represented here.

Though Aligning and Aligned represent consecutive stages on a continuum, in many cases the progression from Aligning to Aligned will not be linear or consistent over time. For additional considerations and examples of Aligned and Aligning in cases that may require further assessment, please refer to [Appendix G](#).

For discussion of the types of further work required regarding the "Performance" Attribute for Aligned, and other considerations, see [Areas for further work](#).

Box 4. Additional attributes for the use of “transitional” activities

“Transitional” activities refer to high-emitting activities that may serve as intermediary decarbonization options for an Aligning entity. These are activities that may replace a relatively higher-emitting activity, but that are themselves not considered viable or sustainable under a net-zero economy, that is, they should be transitory activities in the context of science-based net-zero pathways. For instance, the EU Taxonomy considers “transitional activities” as economic activities that result in substantial reductions in GHG emissions for which there are no technologically and economically feasible low-carbon alternatives (subject to specific conditions and requirements.)¹¹²

Because of economic, technological, and/or infrastructural dependencies, “transitional” activities are subject to “lock-in” risks. The assessment of “transitional” activities can become further complicated as different regions or jurisdictions may deem such activities as viable in the medium term or candidates for immediate phaseout based on specific regional considerations.

Financial institutions could consider a “transitional” activity as part of Transition Finance – Aligning strategy where *the following conditions are satisfied*:

- I. No other no/low carbon alternatives exist;
- II. The “transitional” activity demonstrates significant contribution to lifecycle GHG emissions reductions;
- III. The “transitional” activity demonstrates the ability to enable the Aligning entity to align to a 1.5 degrees C pathway and/or meet its 2030 to 2035 interim targets; AND
- IV. There is a retirement date specified within the Aligning entity's *established net-zero transition plan* that details *how* the “transitional” activity supports the entity's alignment to 1.5 degrees C pathways and *when and how* the “transitional” activity will be phased out.

Financial institutions should identify and consider disclosing exposures to “transitional” activities separate from other exposures under the four key transition financing strategies and provide transparency regarding their assumptions and rationale in support of their assessment.

For added rigor and credibility, financial institutions should consider:

- Establishing concrete timelines for recurring reassessment of “transitional” activity against the Attributes above
- Including planned capex specified for the deployment of succeeding no/low-carbon alternatives

¹¹² EU Commission, [REGULATION \(EU\) 2020/852 of the European Parliament and of the Council](#), June 2020, and [Commission Recommendation \(EU\) 2023/1425](#), June 2023.

Areas for transparency considerations

Financial institutions are encouraged to be transparent in their assessment and the assumptions they employ. Suggestions for key areas for transparency include, but are not limited to:

- Providing the rationale and assumptions applied in the identification and assessment of Aligned/Aligning entities, including timelines for expected establishment of net-zero transition plans and expected alignment timeframe, where appropriate.
- Referring to the specific frameworks, guidance, or platforms that were used to identify and assess Aligned/Aligning entities, if any.
- Providing for separate segmentation, with the rationale and assumptions applied in support of the assessment of “transitional” activities.
- Providing considerations and assumptions made to support the financial institution’s assessment of the Aligning entity where the entity’s net-zero transition plan is still in development.

Sources and references to support identification of Aligned/Aligning entities

Financial institutions are encouraged to draw upon existing frameworks and sources to support the identification and assessment of entities that may be Aligned or Aligning. Such references may include (not exhaustive):

- Standards and regulatory frameworks (e.g., ISSB, UK TPT)
- Industry, sector, market-based frameworks (e.g., ICAPs, ICMA, IIGCC NZIF, NZAOA TSP, NZBA Target Setting Guidance, SMI AMAO)
- Investor and industry initiatives and transition plan assessment tools (e.g., ACT, CA100+, TPI)
- Target-setting frameworks and benchmarking/accreditation organizations (e.g., SBTi, WBA)
- Disclosure frameworks and data collection platforms (e.g., CDP)
- Proprietary methodologies developed and implemented by the financial institution

Additional GFANZ guidance to support the assessment of Aligned/Aligning entities:

- [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#) (November 2022)
- [Guidance on Use of Sectoral Pathways for Financial Institutions](#) (June 2022)
- [Expectations for Real-economy Transition Plans](#) (September 2022)
- [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#) (November 2022)

Box 5. Third-party verification, benchmarking, and accreditation platforms

For enhanced rigor and credibility, financial institutions could consider seeking third-party verification of targets and validation of key attributes/assumptions in support of, and to inform their assessment of, Aligned/Aligning entities. Numerous industry platforms and bodies offer company-level and/or sector-level benchmarking and/or accreditation, providing valuable resources for financial institutions to draw from. These platforms can also provide important information that can be utilized in conjunction with company-specific reporting to support financial institutions' assessment of companies' climate-related actions and commitments.

Examples of such platforms and sources include (not exhaustive, listed in alphabetical order):¹¹³

Assessing low-Carbon Transition® initiative (ACT): The ACT initiative focuses on assessing how companies' strategies are aligned with the transition to a low-carbon economy, in line with the goals of the Paris Agreement. It was launched by the French Agency for Ecological Transition (ADEME) and the CDP and is a joint voluntary initiative of the UNFCCC secretariat Global Climate Agenda.

Climate Action 100+ (CA100+): The CA100+ Net Zero Company Benchmark assesses the performance of real-economy companies based on three high-level goals: emissions reduction, governance, and disclosure and implementation of net-zero transition plans.

CDP (formerly Carbon Disclosure Project): The CDP runs a global environmental disclosure system that enables thousands of financial institutions, real-economy companies, cities, states, and regions to measure and manage environmental impacts, including their progress toward net zero. The CDP analyzes data collected annually and provides insights from the assessment to financial institutions, businesses, and policymakers to facilitate and inform decision-making.

Paris Agreement Capital Transition Assessment (PACTA): PACTA is a free, independent, and open-source tool that enables financial institutions to assess the alignment of their investment and lending portfolios with climate scenarios and the goals of the Paris Agreement. PACTA was launched by 2° Investing Initiative (2DII) and is currently managed under RMI's stewardship.

Science Based Targets initiative (SBTi): The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). The SBTi helps companies establish science-based targets to reduce GHG emissions and transition to net-zero by defining and promoting best practices in emissions reductions and net-zero target setting in line with climate science.

Transition Pathway Initiative (TPI): The TPI is a global, asset-owner led initiative that is based at the Grantham Research Institute on Climate Change and the Environment at the London School of Economics. The TPI's free online tool provides assessments of companies across a range of sectors based on their management quality and carbon performance.

World Benchmarking Alliance (WBA): The WBA develops and publishes free, publicly available benchmarks assessing corporate performance on a range of environmental, social, and governance issues, aligning with the United Nations Sustainable Development Goals (SDGs). The WBA represents an alliance of organizations from around the world, working at global, regional, and local levels in support of achieving the SDGs.

Additional sources and platforms for portfolio alignment can be found in Appendix Q in the GFANZ report on [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#) (November 2022).



¹¹³ GFANZ does not endorse any specific initiative or platform; the examples provided are intended to illustrate potential sources and the value of leveraging third-party platforms to enhance rigor and credibility of assessments by financial institutions.

Example 7: Holcim

Type: Cement

Sector(s): Materials

Holcim, a global leader in sustainable construction, has committed to net-zero emissions across its value chain by 2050.¹¹⁴ In its annual climate report (2022), where the company's net zero strategy is explained, Holcim shared not only its long term but also its interim targets for Scopes 1-3 in both absolute and intensity metrics.¹¹⁵ Holcim also included the breakdown of its Scope 3 emissions and its short-term (2025) targets for Scope 1 emissions, providing valuable additional information for consideration. Disclosing information in such detail will allow financial institutions to more easily assess Holcim's goals and progress toward them.¹¹⁶

	SCOPE 1	SCOPE 2	SCOPE 3	
2018	576 BASELINE	38 BASELINE		
2021	553	34	-0% Kg CO ₂ per ton of purchased clinker and cement	
			-9% Kg CO ₂ per ton of purchased fuels	
			-9% Kg CO ₂ per ton of material transported	
2030	475 Kg CO ₂ net/t cementitious	13 Kg CO ₂ /t cementitious	-20% Kg CO ₂ per ton of purchased clinker and cement	
			-20% Kg CO ₂ per ton of purchased fuels	
			-24% Kg CO ₂ per ton of material transported	
2050	 GHG emissions across the value chain validated by  SCIENCE BASED TARGETS			

Holcim's 2050 net-zero targets validated by SBTi:

- Holcim commits to reduce Scope 1 and 2 GHG emissions by 95% per ton of cementitious materials by 2050 from a 2018 base year.³
- Holcim commits to reduce absolute Scope 3 GHG emissions by 90% by 2050 from a 2020 base year.

³ The target boundary includes land-related emissions and removals from bioenergy feedstocks

Example 8: Japan Airlines

Type: Airline

Sector(s): Transportation

Japan Airlines has committed to achieving net-zero emissions by 2050 with an interim target of 10% reduction in CO₂e by 2030 compared to its 2019 results.¹¹⁷ The airline carrier is attempting to achieve its net zero targets by improving the fuel efficiency of its aircrafts, building new operations, and using Sustainable Aviation Fuel (SAF).¹¹⁸ As SAF has significantly lower CO₂e when compared to other fuels, Japan Airlines looks to replace 1% of its total fuel consumption with SAF by 2025 and 10% of its total fuel consumption with SAF 2030.¹¹⁹

Japan Airlines is taking a number of pathways to support the scale of SAF production and achieve lower emissions air travel more generally. In 2018 it began investing in a SAF manufacturer and now plans to use the resulting supply for its North American flights.¹²⁰ It is also supporting industry collaboration through the formation of the voluntary organization ACT FOR SKY to help address hurdles unique to SAF's commercialization in Japan.¹²¹

¹¹⁴ SBTi. [Dashboard](#), November 2023.

¹¹⁵ Holcim. [Climate Report](#), 2022.

¹¹⁶ GFANZ. [Expectations of Real Economy Transition Plans](#), September 2022.

¹¹⁷ MUFG. [Transition Whitepaper](#), 2023, for a more detailed discussion on SAF, Japan Airlines, and other high-emitting companies.

¹¹⁸ MUFG. [Transition Whitepaper](#), 2023.

¹¹⁹ MUFG. [Transition Whitepaper](#), 2023.

¹²⁰ MUFG. [Transition Whitepaper](#), 2023.

¹²¹ MUFG. [Transition Whitepaper](#), 2023.

Example 9: JLL

Type: Commercial real estate

Sector(s): Real estate

Commercial real estate company JLL aims to reduce its absolute emissions 95% across Scopes 1-3 by 2040.¹²² By following established and public practices like the GHG Protocol, JLL has been able to identify Scope 3 as its largest source of emissions (96% of its emissions footprint).¹²³ Acknowledging the difficulties in addressing Scope 3 and to help deliver on its third-party verified interim, long, and net-zero targets, JLL developed eleven decarbonization pathways.¹²⁴ Each pathway contains action items meant to support corresponding decarbonization efforts. As an example of a key Scope 3 pathway activity, JLL has been engaging with its clients to support them in their net-zero journeys through energy efficiency and emissions reduction programs.¹²⁵

Emissions category (mtCO ₂ e)	2018	2022	% change
Scope 1: Fleet	31,164	26,344*	-15%
Scope 1: Natural Gas	489	259*	-47%
Scope 1: Office Fuels	79	19*	-76%
Total Scope 1	31,732	26,622*	-16%
Scope 2 (Location-based)	12,431	10,345*	-17%
Total Scope 2 (Market-based)	12,261	8,246*	-33%
Scope 3.1: Purchased goods and services	409,397	331,596	-19%
Scope 3.3: Fuel and energy related activities	10,282	7,976	-22%
Scope 3.5: Waste generated in operations	372	343*	-8%
Scope 3.6: Business travel	76,740	59,900*	-22%
Scope 3.7: Employee commuting (inc. homeworking)	100,451	114,811	14%
Scope 3.8: Upstream leased assets	17,785	12,423	-30%
Scope 3.11: Use of sold products	17,547,735	20,181,531	15%
Total Scope 3	18,162,762	20,708,580	14%
Total emissions	18,206,755	20,743,449	14%

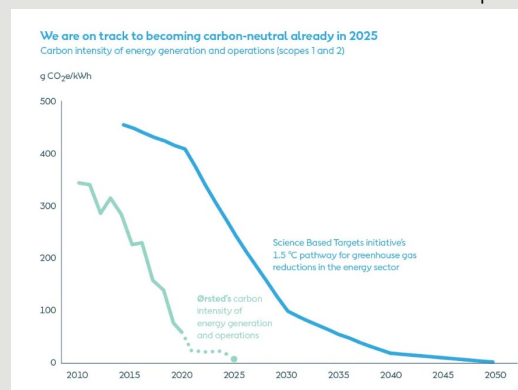
* Independently assured, see page 78

Example 10: Ørsted

Type: Energy company

Sector(s): Energy

Ørsted, the largest energy company in Denmark, has established an ambitious net-zero commitment. On pace to already achieve carbon neutrality in its Scope 1 and 2 emissions by 2025, Ørsted aims to have net-zero emissions across its entire value chain by 2040.¹²⁶ Having a robust and detailed transition plan has allowed Ørsted to become the first organization accredited by Climate Transition Pathway (CTP).¹²⁷ For the first time, in 2022 Ørsted reported on its taxonomy-aligned activities to provide its stakeholders with a standard way to determine the sustainability of its activities.¹²⁸ Transparency around its degree of alignment across KPIs such as revenue, capex, opex, and EBITDA has given financial institutions the ability to track and monitor progress of Ørsted's transition plan.¹²⁹



¹²² SBTi. [Net-Zero Case Study - JLL](#).

¹²³ SBTi. [Net-Zero Case Study - JLL](#).

¹²⁴ JLL. [ESG Performance Report](#), 2022.

¹²⁵ SBTi. [Net-Zero Case Study - JLL](#).

¹²⁶ Ørsted. [About Page](#), November 2023.

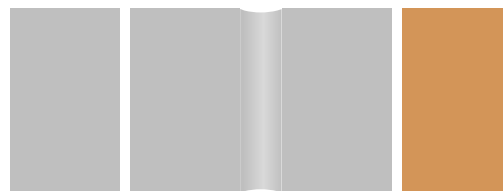
¹²⁷ GFANZ. [Expectations of Real Economy Transition Plans](#), September 2022.

¹²⁸ Ørsted. [Sustainability Report](#), 2022.

¹²⁹ GFANZ. [Expectations of Real Economy Transition Plans](#), September 2022.

ATTRIBUTES

Attributes for Managed Phaseout



The discussion of principles-based Attributes for the purposes of identifying exposures to Managed Phaseout (MPO) assets builds on the original 2022 GFANZ Managed Phaseout report and is consistent with the more recent set of recommendations and guidance by the GFANZ Asia-Pacific (APAC) regional network on the Managed Phaseout of coal assets.¹³⁰

What is Managed Phaseout and how is it different from the other key transition financing strategies?

The focus of this financing strategy is the planned and accelerated retirement of high-emitting assets.¹³¹ These are assets that are not consistent with a net-zero future, and where policy, contractual, economic, and financial barriers exist to their early retirement. A Managed Phaseout plan for high-emitting assets can address these barriers and can be supported by financial institutions that can provide financing – likely alongside public/Multilateral Development Banks (MDB) partners – to support transactions that provide for an accelerated phaseout.

With the focus on the high-emitting asset, the Managed Phaseout strategy does not necessarily encompass the alternative asset that may be constructed or deployed to replace the service provided by the high-emitting asset. From an identification and/or segmentation perspective, the alternative, no/low carbon alternative asset may be considered a Climate Solution and can be identified with the associated Attributes in [Attributes for Climate Solutions](#). Similarly, an Aligning corporate entity may include retrofitting or repurposing an asset in its transition plan and so Attributes in [Attributes for Aligned and Aligning](#) may apply.

Managed Phaseout: Financing or enabling the accelerated Managed Phaseout (e.g., via early retirement) of high-emitting physical assets. This strategy facilitates significant emissions reduction by the identification and planned early retirement of assets while managing critical issues of service continuity and community interests.¹³²

For example, when assessing a fossil fuel power plant designated for phaseout, financing specifically to complete or support the phaseout, perhaps in the form of a use of proceeds loan, may be identified as Managed Phaseout financing. If the power plant is being replaced by clean power assets, financing for the construction or operation of such assets may be identified as Climate Solutions financing. If there is a parent corporate entity that owns both the fossil fuel power plant and the new clean power assets as part of larger operations, general financing to such an entity, such as taking equity shares or a general proceeds loan, may be identified as Aligned or Aligning financing.

¹³⁰ GFANZ. [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#), November 2023.

¹³¹ E.g., for financial institutions with net zero ambitions or who cater to clients with such ambitions.

¹³² GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

Box 6. Co-mingled financing for the phaseout asset and the alternative replacement

The Managed Phaseout financing strategy is focused on the asset being retired and does not necessarily include any alternative zero emission technology that will be used to provide the same or similar services. However, there may be instances where the financing vehicles may include plans for both the phaseout asset and the development of no/low-carbon alternatives to enable the asset to be phased out, for example, a loan to develop the entire site might cover retiring the asset and building or developing the alternative on the same site.

Where financing for the phaseout asset and the alternative replacement is co-mingled, i.e., cannot be divided, there are two inter-related considerations for the financial institution:

- **To inform financial institution NZTP:** Identifying financing as related to Managed Phaseout or Climate Solutions may depend on the Objectives and priorities of the financial institution's NZTP. For example, if there is a focus on Climate Solutions, the co-mingled financing could be identified as Climate Solutions. If the financial institution is using both Climate Solutions and Managed Phaseout strategies, the co-mingled financing might be counted in both groups because the four key transition financing strategies are not mutually exclusive; or the financial institution could apply judgment to assign the co-mingled finance to only one strategy, e.g., Managed Phaseout OR Climate Solutions, or within an Aligning entity if the co-mingled financing is a decarbonization initiative of the entity. In any case, the financial institution should be transparent in its disclosure about how it carried out the identification process.
- **To calculate metrics and targets, including EERs:** To quantify potential EERs, the financial institution could select a quantification methodology relevant to the identified Transition Finance strategy (e.g., Climate Solutions or Managed Phaseout). The financial institution may have the possibility of selecting between a methodology that provides the greater amount of potential EERs or a methodology for which data is available. The financial institution should apply judgment regarding the appropriate methodology and should consider issues such as: accuracy in representing the real-world impact; quality and availability of data; reliability of technical plan; and timing of the expected emissions reductions.

Box 7. Financing the Managed Phaseout of coal-fired power plants in Asia-Pacific

Guidance on Managed Phaseout has been developed by the GFANZ APAC regional network that provides more detail on Managed Phaseout Attributes, including useful case studies from the APAC region. While the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report was developed around coal utilities in the APAC region, the recommendations are broadly applicable to any high-emitting source subject to phaseout and complement the Attributes in this section. How the APAC recommendations mirror – and provide inputs to – the Attributes is discussed in the next section below.

In the APAC guidance, a three-step process to assess, to carry out due diligence, and to monitor Managed Phaseout projects is outlined with ten recommendations for financial institutions.

Box 7. Financing the Managed Phaseout of coal-fired power plants in Asia-Pacific*continued***Step A: Ensuring credibility of relevant energy transition and coal phaseout commitments and plans**

Recommendation 1 (Government climate commitments): Financial institutions should assess the nature, strength, and stability¹³³ of the energy sector transition commitment of the government of the country in which the Coal Fired Power Plant (CFPP) is located. Specifically, this could include the degree of alignment with 1.5 degrees C science-based pathways (i.e., national-level no new coal policies or specific coal phaseout date commitments).

Recommendation 2 (Government energy transition planning): Financial institutions should assess the extent to which there is an existing or emerging plan (including but not limited to commitment through country platforms or alignment with science-based pathways) for the energy/power system that addresses how coal phaseout will be delivered alongside necessary investment in grid infrastructure and renewables, in the country in which the CFPP is located.

Recommendation 3 (Entity coal transition plan): Financial institutions should assess the relevant entity's overall transition plan (both seller and buyer where applicable) – including but not limited to the specific CFPP – to gain confidence that a coal phaseout plan will be implemented and effectively mitigate emissions (e.g., an entity-level commitment to no new coal, or credible third-party-verified transition plan).

Recommendation 4 (Reducing moral hazard): Financial institutions should assess conditions and commitments made in relation to a CFPP subject to an MPO plan (such as whether a plant was commissioned prior to thresholds put forth by taxonomies, or international or national commitments to phase out coal; i.e., 2021 Glasgow Climate Pact) to gain confidence that the risk of moral hazard is significantly contained.

Recommendation 5 (Accelerating phaseout): Financial institutions should assess whether the need for financing is genuine to accelerate early CFPP closure (e.g., if a CFPP has positive fair value).

Step B: Optimizing “meaningful” outcomes across climate impact, financial viability, and socio-economic considerations

Recommendation 6 (Climate impact): Financial institutions should prioritize financing MPO plans that support alignment with a science-based pathway, with proposed emissions reductions as ambitious as possible, with public-sector endorsement or independent verification, and in line with timeframes set out by internationally recognized bodies.

Recommendation 7 (Accessible, affordable clean energy): Financial institutions should assess what measures are in place to support access to secure, reliable and affordable clean energy replacements, such as having feasibility and cost assessments of clean energy replacements, with actions underway to deliver them.

Recommendation 8 (Mitigating adverse socio-economic impacts): Financial institutions should assess what measures are in place to mitigate adverse socio-economic impacts, such as having (i) environmental and social risk and impact assessments; (ii) social dialogue and stakeholder engagement; (iii) worker and community transition plans; (iv) environmental restoration and land repurposing plans; and (v) adverse impact fund (or similar support measures).

¹³³ For example, the broader the political support for climate/energy transition policies, the more enduring and stable the commitment is likely to be.

Box 7. Financing the Managed Phaseout of coal-fired power plants in Asia-Pacific

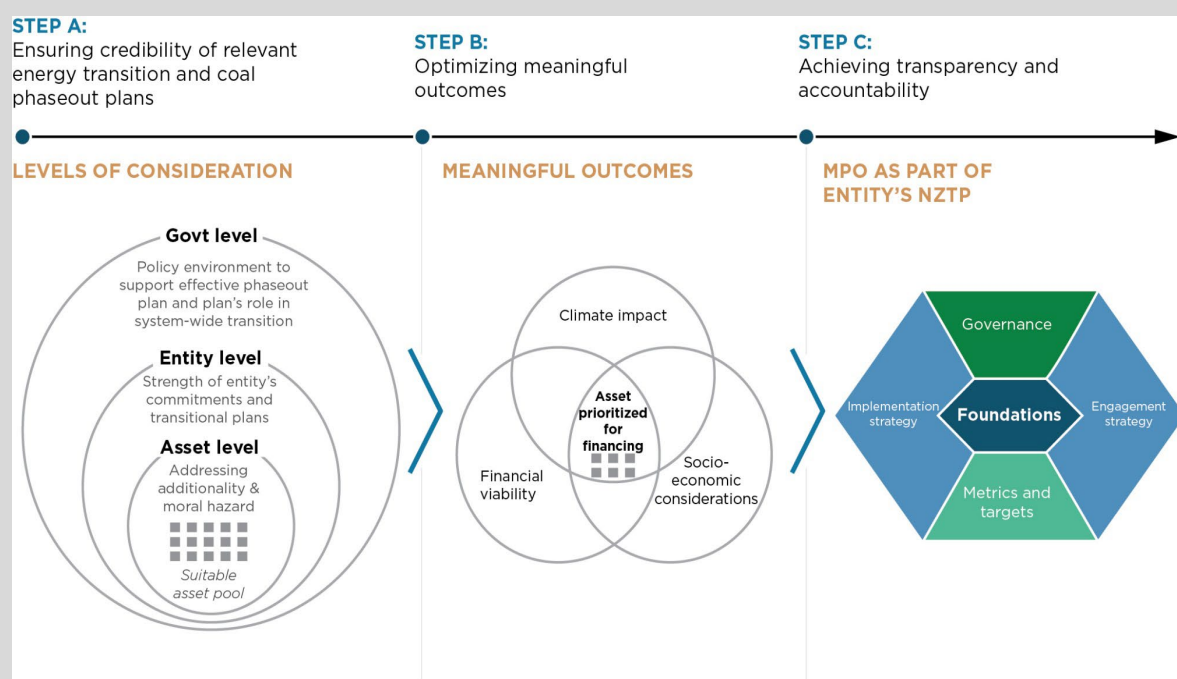
continued

Recommendation 9 (Holistic financial viability analysis): Financial institutions should perform holistic financial viability analysis of a coal phaseout plan to ensure that it is likely to be viable, including capturing the financial impact of socio-economic support measures and associated costs.

Step C: Achieving transparency and accountability for coal phaseout plans referencing the [GFANZ NZTP framework](#)

Recommendation 10 (Transparency and accountability): Financial institutions should set expectations that the entity's CFPP phaseout plan covers the key components of the [GFANZ Real Economy NZTP framework](#) and consider additional reporting on governance measures.

Figure 12. Three-step process for consideration of phaseout plans



[Table 4](#) summarizes the Attributes to identify Managed Phaseout financing and how the APAC recommendations complement and/or provide supporting inputs.

Table 4. Managed Phaseout – Summary of Attributes

APPLICATION: Assets/projects ¹³⁴		
ATTRIBUTE		RELEVANT APAC MPO RECOMMENDATIONS
A. Established net-zero commitment/ambition	<p>Commitment to retire the asset early (i.e., before the expected or intended economic life).</p> <p>The commitment may be based on (not exhaustive): the planned remaining operating life; emissions avoided by shortening the operating life; relevant sector pathway, etc.</p>	Recommendations 1, 2, 4, and 5 cover details related to the enabling environment for a credible phaseout and to the need for financing
B. Established net-zero targets (set to pathway)	Emissions- or Transition-based: ¹³⁵ Targets set against the pathway or benchmark established as part of the phaseout commitment to track phaseout progress (e.g., early retirement year; interim targets along the phaseout GHG emissions profile; etc.)	Recommendation 6 provides details on targets
C. Net-zero transition plan (or phaseout plan)	<p>Phaseout plan specific to the asset and/or captured as part of financial institution or owner/operator's phaseout strategy.¹³⁶</p> <p>The phaseout plan may include estimates of capex and opex requirements. Planned capex and opex may also be used as an indicator/KPI that tracks capital allocation as part of progress toward phaseout; consider specific capex needs such as carbon efficiency, decommissioning, general capex to support early retirement, etc.</p>	<p>Recommendation 3 covers overall details in an entity's phaseout plan.</p> <p>Recommendation 7 includes consideration of provision of same or similar services after phaseout.</p> <p>Recommendation 8 includes wide-ranging types of plans required to manage the socio-economic impacts of a phaseout.</p> <p>Recommendation 9 specifically covers the viability analysis of the phaseout plan.</p>
D. Additional KPIs (where applicable)	<p>May include operational KPIs; decommissioning provisions; retraining of staff; plans in place for alternative (e.g., clean energy) supply; third-party validation/audit; phaseout financing structure; just transition considerations and KPIs, etc.</p> <p>The EER metrics introduced in Part II offer a complementary KPI to monitor in the context of alignment.</p>	KPIs may be associated with Recommendations 3, 6, 7, 8, and 9
E. Performance	Actual performance against established targets/KPIs for phaseout asset along the specific pathway or benchmark. ¹³⁷	Recommendation 10 provide considerations on transparency and accountability

¹³⁴ To support a range of approaches, the Attributes include potential entity-level application (e.g., a holding company of multiple assets for phaseout), but the identification and segmentation exercise in such instances may still necessitate assessment against the indicators on an asset-by-asset basis.

¹³⁵ Emissions-based metrics and targets focus on how the activity changes real-economy GHG emissions over time; transition-based metrics and targets categorize the focus of the financial activity according to the relationship to net zero (e.g., Paris-aligned, production volume, etc.). For further discussion of these types of metrics targets, refer to the [GFANZ Financial Institution Net-zero Transition Plans – Supplemental Information](#).

¹³⁶ Please refer to the GFANZ resources listed at the end of this section for further guidance on considerations for credible Managed Phaseout transactions and aspects to be included in a phaseout plan/NZTP.

¹³⁷ Note that this may be challenging if the asset is operated largely as normal until planned retirement.

Managed Phaseout – Attribute details

The information outlined below is not intended to override or supersede the recommendations and guidance of the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report; rather, it aims to underscore the interconnectedness and relevance of the ten recommendations to the specific Attributes discussed in this Note. Financial institutions and asset management/operators are encouraged to refer to the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report for detailed guidance and case studies.

A. Established net-zero commitment/ambition

APAC MPO Recommendations 1, 2, 4, 5

An asset that is identified for a Managed Phaseout is one that is ultimately inconsistent with a net-zero emissions future. The existing – or new – asset manager/operator should have a net-zero commitment that includes early retirement of the asset. To establish an early retirement – or phaseout – ambition, a number of factors could be considered in support of the feasibility of the retirement plan and to establish that the early retirement date is ambitious in its timeline, such as:

- Whether there is political and technical support for retiring an asset, for example:
 - Government commitments, including targets, to decarbonize the energy sector of which the asset is a part
 - Government plans, including support for retirement and support for replacement systems, to decarbonize the energy sector of which the asset is a part
 - Availability of an alternative technology or process that can replace the services the phaseout asset now produces, including demand reduction
 - If government support, alternative/replacement services, or industry data is absent or not consistent with a net-zero ambition, the asset manager/operator should clarify what other provisions are being used to support the Managed Phaseout
- Technical and economic characteristics of the asset:
 - Age and remaining lifetime of the asset, with consideration of contractual/economic and financial incentives for early closure
 - Asset function is such that its retirement can reasonably be expected to result in decarbonization, i.e., similar emissive output would not simply occur through increased utilization of other assets or new emissive assets being developed
 - Date of commissioning of the asset to avoid unintended incentives for bringing new high-emitting assets online
 - Need and use of finance to make the phaseout possible or to accelerate the phaseout

B. Established net-zero targets (set to pathway)

APAC MPO Recommendation 6

Specific interim and final targets should be a key part of the ambition of any net-zero transition plan or phaseout plan. The final retirement target should consider a science-based pathway or benchmark.¹³⁸ Ideally, the pathway or benchmark would be region and/or sector specific, but given data availability, these may not be available. The existing or new asset manager/operator may need to use more global science-based pathways supplemented by local knowledge. Refer to [In development](#) for a discussion of how engagement with policymakers, peers, and academia may support closing data gaps.

Interim targets should also be set and reflect milestones representative of progress to the final phaseout. These targets may focus on emissions reductions along the chosen pathway sourced from modifications to the asset, reduced customer service base, or demand reduction, etc., in preparation for retirement.

¹³⁸ Please refer to [Guidance on Use of Sectoral Pathways for Financial Institutions](#) for more details on selecting and using sector pathways.

C. Net-zero transition plan (or phaseout plan)

APAC MPO Recommendations 3, 7, 8, 9

An asset manager/operator planning the Managed Phaseout of an asset should have a phaseout plan detailing steps that will be taken to prepare and ultimately retire the asset, including stakeholder management. An asset-specific phaseout plan may draw from a larger plan for the corporate entity that owns or operates the asset being phased out, though it is recognized that Managed Phaseout may involve a change of ownership. For example, the GFANZ NZTP framework contains a theme on Governance. The governance of the asset-specific phaseout will likely include management on the ground that oversees day-to-day operation but may also include accountability at the senior level of a parent company and could tie into the corporate NZTP.

Financial institutions and/or asset manager/operators are encouraged to follow the GFANZ NZTP framework in the development of phaseout plans, or at a minimum, to utilize the GFANZ NZTP framework to assess existing phaseout plans or roadmaps to ensure critical elements are adequately addressed.

Specific to Managed Phaseout, a net-zero transition plan or phaseout plan for the asset should consider including the following (by transition plan theme):

- **Foundation:** the net-zero commitment and ambition (as discussed in Attribute A above), including any key assumptions about technical details of the phaseout and dependencies, such as replacement of services by a third-party.
- **Implementation strategy:** capex and opex requirements; technical provisions and plans for the retirement of the asset; impact assessments (social, risk, environmental); provisions for the workforce; and financial viability.
- **Engagement strategy:** communication with employees, government and regulatory agencies, and customer or client base for the purposes of understanding and managing socio-economic impacts.
- **Metrics and targets:** see Attribute B above for emissions-related final and interim targets; for additional KPIs see Attribute D below; and for monitoring see Attribute E below. Metrics and targets may include a potential EER, as outlined in [Part II](#) of this Note.
- **Governance:** asset-level management, identified senior management for the asset and/or for the program/department to which the asset belongs.

D. Additional KPIs

APAC MPO Recommendations 3, 6, 7, 8, 9

The focus of the Managed Phaseout is emissions reductions, but the retirement of a high-emitting asset has other associated impacts including on society; the local economy; asset management and operation; and to the natural environment. In addition to the retirement target and interim efforts to reduce emissions, non-emission based KPIs should be identified and monitored. The specific KPIs would be tailored to the asset and its phaseout plan, but may include metrics related to:

- Social and socio-economic
 - Management of loss of employment, e.g., retraining, retirement packages, etc.
 - Provision of continued service, especially if the asset is a critical provider of services, including steps taken to scale alternatives¹³⁹
- Execution, including technical and operational considerations
 - Technical steps required for retirement
 - Phaseout financing thresholds
- Natural environment
 - Improvements to the surrounding ecosystem, e.g., land restoration

¹³⁹ As discussed in the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report (Dember 2023), some aspects of a Managed Phaseout project could fall outside the responsibility of the asset owners but may still be monitored to ensure the credibility of phasing out an asset that provides critical services.

- Monitoring climate impact¹⁴⁰

E. Performance

APAC MPO Recommendation 10

Monitoring progress of preparing for retirement and the phaseout of the asset should be carried out regularly and as transparently as possible. Where available, third-party verification should be considered.

Areas for transparency considerations

Please refer to “Step C – Achieving transparency and accountability for coal Managed Phaseout plans/Recommendation 10” in the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report for detailed guidance on transparency/disclosure considerations.

Sources and references to support the identification of Managed Phaseout

Financial institutions and asset management/operators are encouraged to draw upon existing frameworks and platforms to support the identification and assessment of activities, sectors, and assets/transactions that may be suitable or qualify as Managed Phaseout. Such sources may include (not exhaustive):

- Regional taxonomies (e.g., ASEAN Taxonomy, Singapore-Asia Taxonomy)
- Legislative taxonomies (e.g., EU Taxonomy)
- Scientific or intergovernmental frameworks and guidance (e.g., IPCC)
- Industry, sector, and market-based frameworks (e.g., ASEAN Transition Finance Guidance, Asia Transition Finance Guidelines)
- Region-specific initiatives and country-led platforms for energy transition (e.g., Just Energy Transition Partnerships)

Additional GFANZ guidance on structuring, financing mechanisms, and other strategic considerations for Managed Phaseout, particularly applied to coal activities, can be found in:

- [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) (December 2023)
- [The Managed Phaseout of High-emitting Assets](#) (June 2022)
- [Metrics and Mechanisms to Finance a Managed Coal Phaseout](#) (RMI, 2023; commissioned by GFANZ)
- [Financing Mechanisms to Accelerate Managed Coal Power Phaseout](#) (RMI, January 2023; commissioned by GFANZ)

¹⁴⁰ Considerations in Recommendation 6 of the [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#) report may have metrics associated to regional or sectoral climate goals or data such as regional carbon budgets.

In development

Exposures that do not yet meet the Attributes of the four key transition financing strategies could be categorized as “In development”. The category of “In development” should not be merely a repository for outliers; rather, with further analysis and grouping, it may serve as a crucial tool for analysis and additional input into driving capital toward Transition Finance and supporting net-zero transition plans.

Financial institutions are encouraged to consider categorizing “In development” exposures under sub-groups. These sub-groups may serve as the basis for constructing strategies and roadmaps that outline and inform the steps needed to eventually progress and integrate these exposures into the four key transition financing strategies, where appropriate. Financial institutions should consider how they will support the progression of the Implementation and/or Engagement Strategies within their net-zero transition plans. [Table 5](#) sets out potential sub-groups and example considerations (not exhaustive).

Table 5. Potential “In development” sub-groups

	POTENTIAL SUB-GROUPS	RELEVANT FINANCING STRATEGY	EXAMPLE CONSIDERATIONS
Alignment maturity scale	Committed to Aligning ¹⁴¹ Entities that have made a net-zero commitment and are in the process of establishing corresponding targets, benchmarks, and/or an NZTP to support this ambition	Aligned/Aligning	<ul style="list-style-type: none"> Engage with the entity to support it in its establishment of targets, benchmarks Allocate resources in support of the entity in its development of a NZTP Engage with the entity to establish specific milestones/timelines for target-setting, benchmarking, and the NZTP
	Not Aligned ¹⁴² Entities that have not made a commitment/ambition to net zero	Aligned/Aligning	<ul style="list-style-type: none"> Engage with the entity to support it in making a commitment, in line with established Engagement Strategy
Process and data limitations	Exposures pending assessment This may represent a pipeline of assets and entities that, due to timing or other procedural factors, have not yet undergone the assessment	All	<ul style="list-style-type: none"> Develop a timeline to organize the assessment of these exposures Allocate resources to support the execution of this timeline of assessment
	Exposures with limited data and resources Assets and entities for which conducting assessment proves challenging, given limited data availability and resources (e.g., SMEs, private market exposures, etc.)	All	<ul style="list-style-type: none"> Identify proxy data or estimation techniques to fill the gaps Evaluate types of data and sources to support and assess priority exposures and potential steps to acquire this data Engage with experts and partners who can support proprietary data sourcing and assessment

¹⁴¹ For sector-specific guidance, financial institutions may refer to established industry frameworks such as the [IIGCC Net Zero Investment Framework Implementation Guide](#) (April 2021) for details.

¹⁴² For sector-specific guidance, financial institutions may refer to established industry frameworks such as the [IIGCC Net Zero Investment Framework Implementation Guide](#) (April 2021) for details.

	POTENTIAL SUB-GROUPS	RELEVANT FINANCING STRATEGY	EXAMPLE CONSIDERATIONS
Other	<p>“Transitional” activities without retirement date</p> <p>Activities that are under consideration as “transitional” activities, yet do not have a specified retirement date</p>	Aligning	<ul style="list-style-type: none"> Conduct assessment of suitable pathways; considering technological advancements (for potential succeeding no/low carbon alternatives), regulatory requirements, etc., to determine the optimal retirement date for the high emitting “transitional” activities Identify any gaps in existing policies and regulations that may provide clearer guidance on appropriate retirement dates and pathways for the sector/region Identify key stakeholders that need to be engaged to implement the retirement date Establish timelines with specific deadline for establishing retirement date and its incorporation within the Aligning entity’s NZTP
	<p>“Transitional” activities that support an Aligning entity without a NZTP</p> <p>Activities that are under consideration as “transitional” activities where a specified retirement date exists, but the Aligning entity does not have a NZTP to support the retirement timeline</p>	Aligning	<ul style="list-style-type: none"> Identify key actions for engagement and to prioritize the development of the entity’s NZTP with specified milestones/timelines Identify key stakeholders that need to be engaged to incorporate the “transitional” activities retirement timeline within the NZTP

A financial institution may find it valuable to aggregate exposures that, at present, may not be in scope and/or may lack viable options to progress or be considered as Transition Finance. Such groupings can provide a financial institution with a more comprehensive view of its net-zero transition plan, supporting transparency particularly if the net-zero transition plan also outlines how these exposures may be accounted for in support of net-zero objectives and priorities.

Use case considerations

This section outlines considerations relevant when applying the Attributes to identify the transition nature of new opportunities or existing portfolio holdings or clients. The information below may be relevant in either use case mentioned earlier: scaling Transition Finance and informing NZTP or quantifying metrics and targets, such as decarbonization contributions. Financial institutions are encouraged to utilize the Attributes in this Note and tailor their application in a manner that best suits their specific asset classes and portfolio exposures.

This Note recognizes the differences in strategies that may be employed by financial institutions in working toward their net-zero goals. Timelines for reassessing portfolio composition will vary widely depending on business models and we encourage financial institutions to consider use of the outlined approach in ways that integrate well with existing practice in support of an accelerated transition to net-zero oriented portfolios.

Using one or more key transition financing strategies

The GFANZ four key transition financing strategies are not mutually exclusive. While the strategies of Aligned and Aligning show a natural progression whereby the outcome of a successful Aligning strategy is an Aligned entity, entities that have the Attributes of Climate Solutions may also have the Attributes of Aligned or Aligning.

For example, Attributes that identify an entity as a Climate Solution focus on the emissions reductions from the use of the end product, not on the operational emissions of the manufacturing of the product. If that entity is decarbonizing its business operations, it may also be identified as Aligning.

Climate Solutions are often the activities and projects that will in turn allow for the eventual progression of entities and sectors toward Aligned and Aligning, adding a further level of interconnectedness between the strategies.

A financial institution may wish to scale Transition Finance toward one or more, but not all, of the four key transition financing strategies, depending on the focus of the institution's NZTP. A financial institution may also wish to understand or compare the potential decarbonization contribution between financing strategies. In both cases, one of the first steps would be to analyze the holdings in question against individual strategies without aggregation. Financial institutions may choose to group exposures under the strategy that best supports and helps to inform their net-zero transition plan. For example, if the Implementation Strategy focuses on capital mobilization to Climate Solutions, a financial institution may choose to group financing opportunities under Climate Solutions even if they may satisfy Aligning Attributes.

Application dimensions

The Attributes may be applied across different dimensions. Examples may include targeted application to capture:

- **Individual exposures** – To analyze a specific new opportunity or existing position in a client and/or portfolio company
- **Total portfolio** – To apply and group total portfolio exposures and/or mandates by one of the four key transition financing strategies
- **Total position at a specific date** – For a point in time stocktake against a target (e.g., “stock” of exposure or balance sheet approach)¹⁴³
- **Activity over a period of time** – To gauge quarterly progress in new financing products or services that target a set of clients or strategy, e.g., the “flow” of capital¹⁴⁴

¹⁴³ The NZBA discussion paper, [Developing Metrics for Transition Finance](#), delves deeper into “stock” vs. “flow” considerations within sector-specific context.

¹⁴⁴ The NZBA discussion paper, [Developing Metrics for Transition Finance](#), delves deeper into “stock” vs. “flow” considerations within sector-specific context.

- **The portion of the business subject to financed emission targets**¹⁴⁵ – As a complement to explain the trajectory of the portfolio footprint
- **Specific priority sectors and asset classes** – Useful especially with high emissions, where rapid decarbonization in the short term is of particular importance

In all cases above, the Attributes for the strategies under analysis can be applied to the selected set of opportunities, portfolio holdings, exposures, or clients. The Attributes have been developed so that financial institutions can be flexible in their application based on the information that is needed and how the information is to be used.

Degree of association

The pan-sector nature of the GFANZ's four key transition financing strategies allows them to be applicable: across different asset classes and financing structures; under various types of relationships between financial institutions and their clients and portfolio companies.

Different financing structures and asset classes may allow higher/lower degrees of association between the financing and/or engagement efforts and the underlying decarbonization impact of the asset or entity. While financial institutions may not delineate these differences for identification purposes, distinguishing exposures across the four key transition financing strategies between varying degrees of association enhances transparency, as well as informs allocation considerations and adjustments to metrics that may be appropriate, such as to EER as outlined in [Part II](#) of this Note.

For consideration, factors that may determine the applicability and degree of association with an asset or entity's transition initiatives include (not exhaustive):

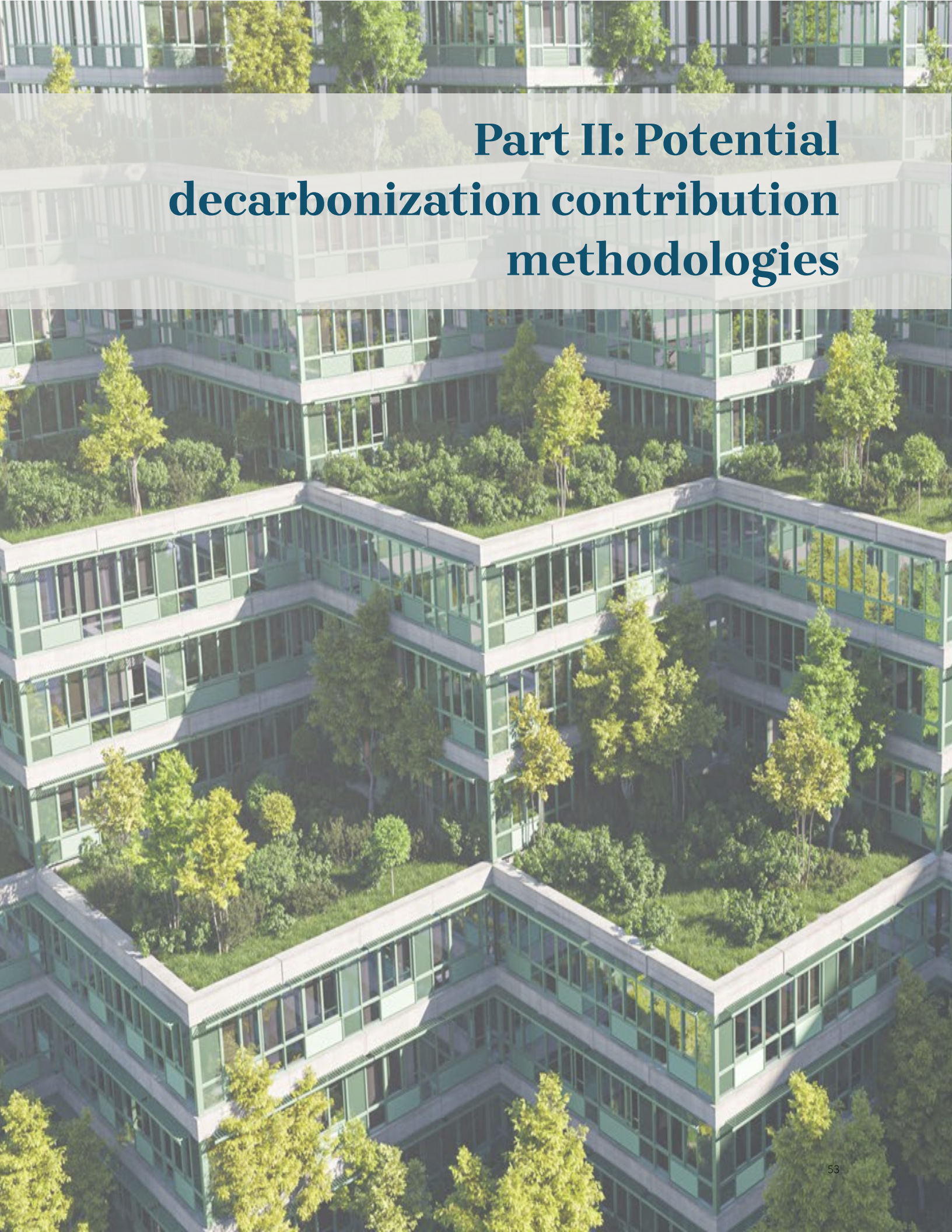
- Financing structure: consider whether the capital/financing has been earmarked for specific use of proceeds toward decarbonization initiatives or structured for general purpose
- Market exposure: consider whether the exposure is through primary or secondary markets, with primary market exposures providing potentially higher degrees of association toward decarbonization initiatives
- Ownership stake: consider ownership or other structural factors that may provide higher or lower degrees of engagement on decarbonization initiatives

For enhanced transparency, financial institutions should consider further differentiating exposures within one of the four key transition financing strategies by degree of association to the underlying decarbonization activity and impact.

Table 6. Example differentiating factors that may impact the degree of association

	HIGHER DEGREE OF ASSOCIATION	LOWER DEGREE OF ASSOCIATION
Financing structure		General purpose
	Use of proceeds	
Market exposure	Primary market	
		Secondary market
Ownership stake	Control interest	
		Passive interest

¹⁴⁵ Note the incorporation of exposures across the four key transition financing strategies, particularly for Managed Phaseout assets, may increase financed emissions in the short-term.

An aerial photograph of a modern, multi-story building with a complex, angular design. The building features extensive glass facades and flat roofs that are integrated with green spaces, including trees and shrubs. The building is surrounded by more greenery, and the overall scene is brightly lit, suggesting a sunny day.

Part II: Potential decarbonization contribution methodologies

Overview

Scaling Transition Finance requires a multifaceted approach. Decarbonization efforts by the real economy, supported by government policy and private finance all play a role in driving Transition Finance. Financial institutions can support the scaling of Transition Finance through net-zero transition plans that prioritize the four key transition financing strategies. The GFANZ Secretariat believes an important but underdeveloped mechanism to support the use of the strategies is capturing the planned, forward-looking emissions reduction of real-economy actors.

As outlined in the GFANZ NZTP framework,¹⁴⁶ a credible net-zero transition plan should include five themes and ten components, one of which is Metrics and Targets. Within Metrics and Targets, financial institutions are encouraged to use a series of different measures that best capture and enable monitoring of progress in the execution of their net-zero transition plans and real-economy impact.

One of the primary metrics financial institutions use to track progress in the execution of their net-zero transition plans is financed emissions. But while financed emissions analysis provides useful insight, it may not capture the broad, whole-economy decarbonization impact of Climate Solutions or efforts to finance the emissions reduction potential of high-emitting exposures. Therefore, for a more complete picture, financial institutions may find it useful to complement financed emissions analysis by measuring capital mobilized under the four key transition financing strategies. Absolute or comparative metrics, such as assets under management dedicated to low carbon technology or clean energy investment ratios, are readily available proxies today. However, to more effectively understand the emissions impact (e.g., emissions reduction per dollar financing) and capture real-economy impact, a metric focused on forward-looking emissions could support more informed capital allocation.

The approaches identified and outlined in Part II seek to capture the planned, real-economy emissions impact of assets and entities across the four key transition financing strategies. The concept of Expected Emissions Reduction (EER), which captures forward-looking emissions reduction potential of an asset/entity, is introduced as a complement to existing portfolio alignment measures and other Metrics and Targets, such as capital mobilized. EER may serve as an effective measure to support the scaling of transition financing and related services across all sectors where needed, including high-emitting sectors. This Part presents the key inputs, variables, and existing methodologies that may be considered in building up to the EER measure for each of the four key transition financing strategies, and is organized as follows:

1. Potential approaches for decarbonization contribution

This section is broken into three subsections: [Potential emissions reductions from Climate Solutions](#); [Potential emissions reductions from Aligned and Aligning](#); and [Potential emissions reductions from Managed Phaseout](#). The section outlines key technical considerations in deriving the EER measure for each of the four key transition financing strategies, based on relevant methodologies that exist today. The approaches outlined support prioritization of short to medium-term actions, based on net-zero science-based pathways as foundational anchor points.

2. Use case considerations

The GFANZ Secretariat acknowledges that the refinement of the EER concept will be ongoing and in this section proposes the use case considerations for practitioners to take into account when testing or adopting the EER concept to support internal processes and assessment.

The GFANZ Secretariat acknowledges potential complexities in the application of these concepts, including those due to data limitations and the nascency of the concepts presented in Part II. Anchoring decarbonization contribution approaches in the five principles outlined in [Scope and approach](#) could therefore help guide the implementation of these concepts in light of the uncertainties. Some of the concerns that have been expressed:

¹⁴⁶ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

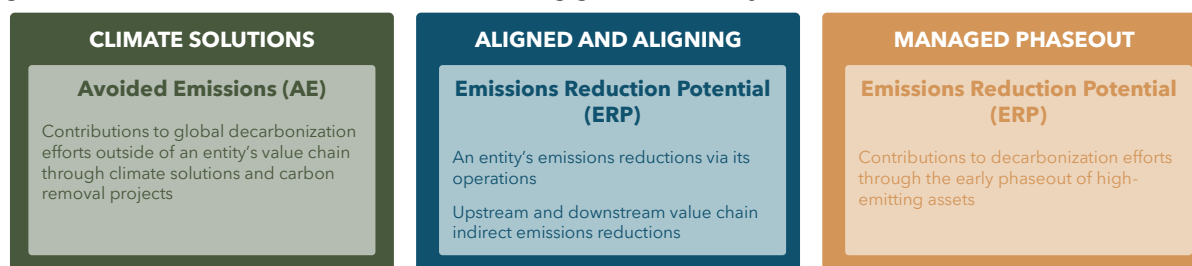
- Selecting a baseline scenario is challenging, especially one with sufficient sectoral and regional granularity that reflects the most probable business-as-usual reality of an entity. Depending on the sector that an entity is operating in, appropriate scenarios might simply not be available. Therefore, a counterfactual business as usual (BAU) scenario may not sufficiently represent the environment and dynamics in which the entity operates.
- There is a risk that practitioners might select a BAU option, potentially leading to a less conservative overestimation of EER.
- EER alone may discourage financing to clients and portfolio companies that have previously undertaken mitigation actions, as the measured EER for aligned companies could be lower. It is important to note that the EER concept is meant to be complementary to existing KPIs and set in the context of the NZTP objectives, and financial institutions are encouraged to make adjustments to the EER calculation that may take into account the quality of reduction targets when deriving EER (as demonstrated in [Assessment and integration with other KPIs](#)).

As highlighted in [Part I](#), financial institutions that wish to use EER as a complementary or additional KPI are strongly encouraged to ensure an established net-zero transition plan of the portfolio holding is in place as a basis to support EER assumptions and calculations. More effort to refine EER will be necessary so the concept becomes fit for purpose. The [Areas for further work](#) section discusses those challenges that require ongoing development and refinement, including:

- Baseline/business-as-usual assumptions and considerations
- Temporal adjustments, including the “time value of carbon”
- Considerations for allocating emissions reductions to Enablers
- Allocation of EER to a financing entity
- Considerations for aggregation of EER
- Additional metrics based on EER (e.g., emissions returns)

Given the nascency of the decarbonization contribution approaches outlined in this section, financial institutions may contemplate testing and adopting the EER concept to inform their internal decision-making and begin piloting the methods (refer to [Use case considerations](#) for further discussion). The [overarching five principles](#) can serve as additional safeguards when implementing potential approaches to measuring EER. Financial institutions may also wish to explore EER methods for those financial instruments where the use of proceeds is known to establish a higher degree of association with decarbonization contribution potential and therefore more readily provide a basis for the allocation of EER to the financial portfolios. As financial institutions consider disclosing lessons learned from the applications, each institution should determine specific content, location, and frequency for disclosing the application of the concepts outlined in this section. While the GFANZ Secretariat encourages and underscores the significance of disclosure as a foundational aspect of net-zero commitments, the technical considerations in this Note are not intended to provide disclosure guidance.

Figure 13. The decarbonization levers for reaching global economy net-zero GHG emissions¹⁴⁷



¹⁴⁷ [Figure 13](#) summarizes the specific scope of application most appropriate based on the potential approaches. Please refer to [Part I](#) for the definitions and Attributes for each of the GFANZ four key transition financing strategies. The GFANZ Secretariat notes that development and scaling of Solutions and Enablers is a critical step for entities to meet their net-zero goals and to achieve a whole -economy transition to net zero. While entities can – and are – implementing technologies, processes, and other market-ready mitigation measures today, new measures, especially in hard-to-abate sectors, and greater deployment of existing and new measures will be needed to support an orderly transition to net-zero.

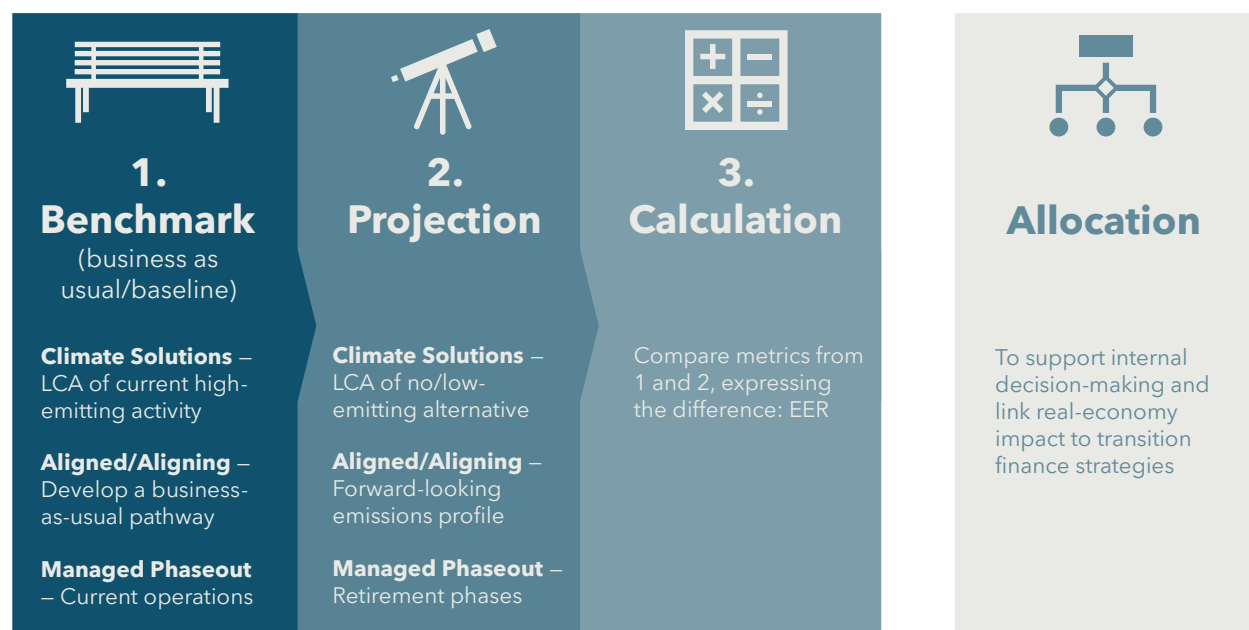
Potential approaches for decarbonization contribution

The four key transition financing strategies discussed in Part I represent key strategies for achieving net-zero. To measure their emissions reduction impact, distinct approaches outlined in [Figure 13](#) are required.

Part II of this Note outlines one potential quantification method to estimate the EER for each of the strategies. For the section [Potential emissions reductions from Climate Solutions](#), existing Avoided Emissions (AE) approaches based on Life Cycle Analysis¹⁴⁸ (LCA) as a potential means of assessing EERs are covered. And, for [Aligned and Aligning](#) entities and [Managed Phaseout](#) assets, the Emissions Reduction Potential (ERP) method is outlined.

The potential approaches described in this Note share three methodological steps. Other methods of quantifying EER may differ. In the methods described here, Step 1 is constructing a representation of what would have happened in the absence of the transition-related actions (Benchmark), Step 2 is constructing the planned emissions impact (Projection), and Step 3 is comparing the difference to express the Expected Emission Reduction (Calculation), see [Figure 14](#). A potential final step is Allocation of the EER to the financial institution, drawing parallels with the allocation of emissions in the creation of a portfolio footprint.

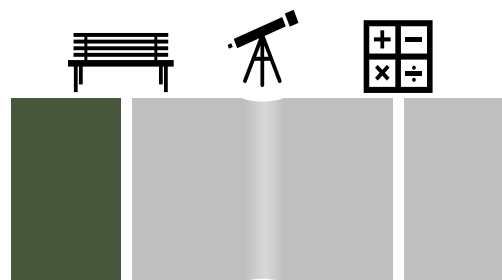
Figure 14. Steps in the proposed EER quantification methodologies



¹⁴⁸ Also known as Life Cycle Assessment.

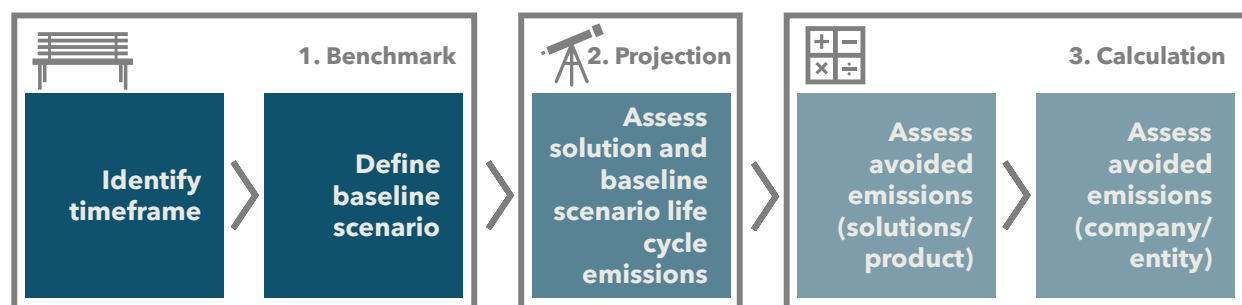
EER methodology

Potential emissions reductions from Climate Solutions



For Climate Solutions, this Note considers the Avoided Emissions (AE) approach¹⁴⁹ for quantifying the decarbonization impact of products or services as a potential EER quantification methodology. [Figure 15](#) illustrates a five-step approach for quantifying EER using the AE approach, which is mapped to the steps of EER calculation methods set out in [Figure 14](#). This five-step approach is based on the WBCSD guidance¹⁵⁰ on assessing avoided emissions and considers the use of LCA.

Figure 15. The WBCSD five-step approach to calculating avoided emissions



LCA is a methodology for assessing the environmental impact at all stages of the life cycle of a commercial product, process, or service – from cradle to grave. For instance, in the case of a manufactured product, environmental impacts are assessed from raw material extraction and processing (cradle), through to the product's manufacture, distribution, and use to the recycling or final disposal (grave).¹⁵¹ An LCA could be applied to both the Climate Solution and the higher-emitting alternative, as explained below.

The GFANZ Secretariat acknowledges the inherent complexities with the implementation of the LCA method – please refer to [Areas for further work](#) for additional discussion.

¹⁴⁹ GS SUSTAIN. [Avoided emissions: How quantifying Avoided Emissions can broaden the decarbonization investment universe](#), 2023.

¹⁵⁰ WBCSD. [Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net Zero](#), March 2023, p. 28.

¹⁵¹ M.L. Brusseau, [Environmental and Pollution Science \(Third Edition\), Chapter 32 - Sustainable Development and Other Solutions to Pollution and Global Change](#). Academic Press, 2019, pg. 585-603.



Constructing the Climate Solutions benchmark (Step 1) and projection (Step 2)

Basis for constructing the benchmark (baseline) scenario

The baseline is the counterfactual of what would have happened in the absence of the Climate Solution and serves as a reference point against which to measure the impact of the Climate Solution. The baseline scenario comprises the most likely technology or product that would have provided the same service as the Climate Solution.¹⁵² The consultation indicated the risks associated with developing credible baselines and further work is needed to ensure its proper application (see [Areas for further work](#)).

Data on the upstream, production use, and end-of-life emissions from both the baseline and the Climate Solution is needed to calculate the LCA emissions. In the absence of a product-specific baseline scenario or sufficient data to construct one, BAU pathway scenarios, which are often more static, could be used to estimate the reduction potential.

However, the EERs can vary significantly based on the region where a Climate Solution is deployed. For example, the lifecycle emissions of electric vehicles depend heavily on grid emission factors in different countries.¹⁵³ Therefore, if at all possible, LCAs should incorporate regional granularity and should consider local environmental conditions, regulations, and resources. A context-specific analysis helps to account for factors like energy mix, water availability, and transportation infrastructure, which can all influence the carbon footprint and EER of a Climate Solution.

Projecting, updating, and monitoring the baseline

It could be expected that over the lifetime of the baseline or Climate Solution, specific factors impacting their emissions profile may change, such as technological advancements, changes in energy mix, policy changes, evolving industry standards, and demand changes.¹⁵⁴ Examples of factors that could change include planned or probable electricity system decarbonization – which would lower emissions – or reduced efficiency of ageing heating systems, which would raise emissions. However, including these updates entails more assumptions and uncertainty and is, therefore, relatively complex to implement. Further work is needed to ensure that system-level factors are appropriately incorporated into the AE methodology.

In deriving the EER, the time horizon underpinning the baseline should be consistent with the Climate Solution's projected emissions and the production curve used in the calculation assumption. Where the time horizons differ, to ensure that the resulting EER and its boundaries are clear, financial institutions are encouraged to be transparent regarding the underlying assumptions and rationale.

As some of the factors impacting emissions may not be apparent or in existence at the time of the initial analysis, the emission characteristics data for both the baseline and Climate Solution should be periodically updated to reflect changes. Updates might be triggered by events such as new policies, new technologies applicable to the baseline industry, or new industry standards.

¹⁵² Project Frame. [Pre-Investment Considerations, Diving Deeper into Assessing Future Greenhouse Gas Impact](#), April 2023.

¹⁵³ BloombergNEF. [The lifecycle emissions of electric vehicles](#), 2020.

¹⁵⁴ WBCSD. [Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net Zero](#), March 2023, p. 33.



Box 8. Considerations on timeframes and portfolio aggregation

Timeframe considerations

When a real-economy company assesses the avoided emissions of its products and services, the assessment should be consistent with the timeframe used to assess its direct and indirect emissions as part of the company's GHG inventory. For example:

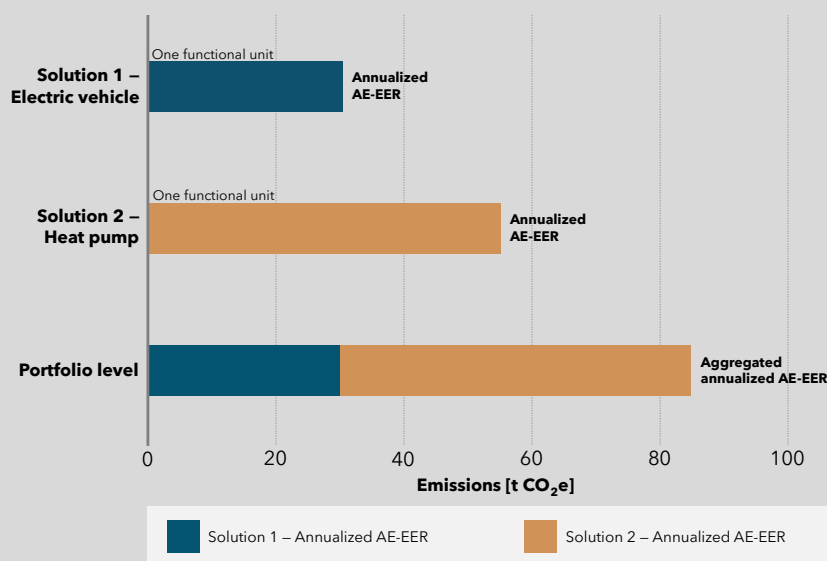
- If Company A produces an emission-reducing technology and sells it to the end user, Company A would not have actual data on the use of the technology after sale. Therefore, the AE analysis of Company A in the year of sale should include the Solution's entire life cycle (up until the point of sale).
- Conversely, if Company A leased the technology to the end user, actual data on the use and performance of the technology would be available to Company A. The actual use and performance of the leased technology could then be calculated and reported annually, for example under Downstream Leased Assets – Category 13 Scope 3.¹⁵⁵

Aggregation considerations

When calculating EER using the AE approach on the “year of sale” basis, the entire life cycle emissions of different Climate Solutions in the portfolio could be aggregated, taking into account the year when the solutions are sold. For example, the emissions savings of a 20-year electric vehicle may be aggregated with the emissions savings of a heat pump with a 25-year lifespan, both sold in the same year.

Alternatively, the AE-EER could be annualized at the Climate Solution level. An annualized EER could also be used to aggregate the potential emissions reduction impacts from multiple Climate Solutions. The process of annualizing could be valuable for financial institutions as it allows projecting EER for interim target time horizons, such as the crucial stop-gap date of 2030 which assumes a whole-economy reduction of 50% in GHG emissions. When considering EER over interim time horizons, it is paramount to ensure the appropriate distribution of the full lifecycle emissions during the interim period.

Figure 16. Illustrative example of aggregating annualized avoided emission EERs



¹⁵⁵ The upstream and end of life emissions would be allocated across the lifetime of the product and added to the annual emissions from usage.



Box 9. Tailoring Avoided Emissions approaches based on intent, asset class, and regions

Different types of funds may tailor the AE calculation based on their needs.

Impact funds often have stringent criteria for the types of projects or companies that provide Climate Solutions that can be included in the fund. Given that such funds' portfolios are often more concentrated, establishing robust baselines for Climate Solutions may be relatively more straightforward due to the limited number of projects or assets to consider. As a result, evaluating the expected impact of each holding based on comprehensive product-specific LCAs may be feasible.

On the other hand, when managing large, diversified portfolios, establishing a robust baseline becomes more complex. The process might require aggregating and analyzing data for a large number of holdings, which can present challenges in terms of data availability and consistency. In this case, financial institutions with larger portfolios may find it helpful to allow a balance between precise impact measurement and portfolio diversification.

Different asset classes may have unique considerations when it comes to Climate Solutions and the adoption of technology advances. For example, infrastructure projects such as large-scale renewable energy installations often have longer lifecycles and the focus may be more on implementation and scalability because they may not be particularly technology driven. Regional contexts will come into play, as some regions may rely on established technologies due to resource availability and economic constraints, while others may adopt cutting-edge technologies. For venture capital funds, additionality may be a consideration as they often invest in early-stage companies developing innovative Climate Solutions. Therefore, it is necessary to tailor the approach to the needs of different financial institution types and asset classes.

Box 10. The risk of double counting

The risk of double counting life cycle emissions arises in situations where a portfolio contains more than one Enabler for the same Climate Solution. This can lead to allocating the Solutions' AE-EER more than once in the same portfolio. An example is where a financial institution has exposure to both an electric vehicle (EV) battery maker and a lithium mining company:

- **Lithium mining company:** The first stage involves mining and extracting lithium, a critical component of EV batteries. During this stage, the mining company emits GHG emissions, mainly from the energy-intensive processes and equipment used in mining and refining lithium. These emissions are calculated as part of the mining company's carbon footprint.
- **EV battery maker:** The second stage involves the production of EV batteries, which require lithium as a raw material. The battery manufacturing process also emits GHG emissions due to energy consumption and other factors. These emissions are calculated as part of the battery maker's carbon footprint.

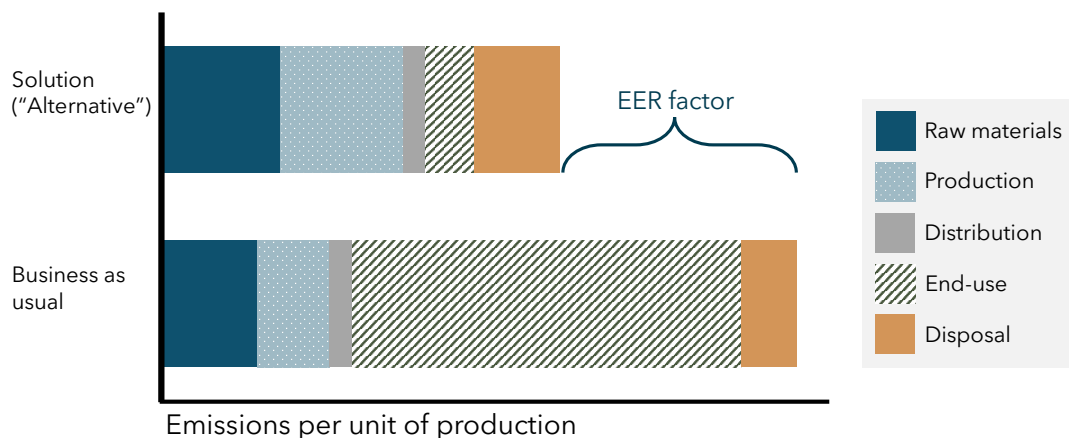
The potential decarbonization impact would be inflated if aggregated at the portfolio level. Financial institutions are strongly encouraged to disclose where Enablers are part of the same Solution value chain.



Calculating the Climate Solutions EER (Step 3)

When assessing emissions and environmental impacts, LCA considers all stages of the life cycle, including production, transportation, and usage, thereby providing a comprehensive understanding of emissions throughout the supply chain. Once the emissions have been calculated for all stages of both the baseline and Climate Solution, the difference is the AE-EER on an absolute emissions basis or the EER factor¹⁵⁶ on an intensity basis. [Figure 17](#) and [Equation 1](#) illustrate this concept for LCA on an emissions intensity basis.

Figure 17. Calculation of the EER of Climate Solutions using LCA



Equation 1. Equation for an AE-EER calculation

$$\text{AE-EER} = \text{EER factor} \times \text{production}$$

While the focus of Climate Solutions is on reducing end-use emissions, upstream emissions can be significant. In these cases, LCA is particularly important to capture the value chain emissions in addition to the end-use emissions reductions. For example, in an electric vehicle (EV) value chain, the emissions from upstream lithium mining and battery manufacturing are material even though an EV significantly reduces end-use emissions from Internal Combustion Engines (up to 100% depending on the source of electricity).

However, data quality and availability depend on many factors, such as the scope, the system boundaries, the data sources, the data collection methods, and the data validation procedures. Obtaining detailed LCA data for Climate Solutions can be challenging, including finding reliable and representative data for the inventory and impact factors in a Climate Solution's value chain. In the absence of a full LCA being available, or where the majority of emissions are in the end-use, practitioners may consider reducing the emissions boundary to end-use emissions only but be transparent about the assumptions made.

Because there currently is no widely accepted methodology for allocating emissions reductions from a Solution to multiple Enablers in the value chain, the entirety of the Solution's AE-EER could be attributed to the Enabler. Then, similar to the [Transparency](#) discussion in Part I for Climate Solutions and to avoid double counting, this Note contemplates keeping the AE-EER for the Solution and Enabler separate, for example, to help inform capital allocation decisions. In the case where there are multiple Enablers for a single Solution, all of which are under assessment, the double-counting should be accounted for in any analysis (see [Box 10](#)).

¹⁵⁶ Often termed "avoidance factor" in the context of Avoided Emissions.

**Example 11: Just Climate approach****Type:** Climate Solutions

The investor, Just Climate, seeks to invest in climate solutions with highest climate impact and attractive market returns.¹⁵⁷ Just Climate has three frameworks that are core to its investment process: Climate Impact Quality, Business Quality, and Management Quality.¹⁵⁸ In the Climate Impact Quality framework, Just Climate uses avoided emissions over 10-years as a quantitative measure to assess the scale and timeliness of climate impact. As part of this assessment, there are also two requirements with respect to the assessment of Additionality:

- Is decarbonization of the baseline scenario for these GHG emissions not already happening fast enough to be consistent with a 1.5 degrees C global warming pathway?
- Is the company going to accelerate decarbonization vs. the baseline scenario, for example through reducing costs, historical barriers for adoption, or perceived risk?

Pinpointing the quantitative additionality of a financing decision is challenging. To address this, Just Climate employs a structured approach that assesses various barriers, sourced from the GHG Protocol Project Accounting Standard,¹⁵⁹ as a proxy for additionality. The approach involves evaluating the barriers that a specific climate solution could address to expedite decarbonization vs. the baseline scenario. For example, one such barrier might be “resource availability,” where the goal is to assess whether financing a new lithium extraction technology, which could increase lithium extraction from existing brine pools, could help address the potential supply/demand mismatch for lithium which is needed for EV battery manufacturing. Another type of barrier could pertain to “technology,” where a sector lacks the necessary technology to economically achieve decarbonization. This barrier is particularly strong to assess additionality since new and innovative technologies, such as alternative production methods for sustainable aviation fuel, are not factored into the baseline scenario.

Barrier Types	Barrier questions to support Just Climate’s assessment of additionality
Technology	<ul style="list-style-type: none"> • Is a sector lacking the needed technology to decarbonise? (either a new technology that displaces a higher GHG one or a significant improvement on an existing technology (e.g., efficiencies))
Financial and budgetary	<ul style="list-style-type: none"> • Are high costs preventing or slowing down roll out? • Is there limited or no access to capital for this climate solution in a given region? • Are there high perceived risks, resulting in high borrowing costs or lack of access to credit or capital?
Technology operation and maintenance	<ul style="list-style-type: none"> • Is there a lack of trained personnel capable for installing, maintaining, operating, or managing a technology or facility and lack of education or training resources?
Infrastructure	<ul style="list-style-type: none"> • Is there inadequate supply or transport infrastructure for inputs, spare parts, fuels, etc.? • Is there a lack of infrastructure required to integrate and maintain new technologies/practices?
Market structure	<ul style="list-style-type: none"> • Do market barriers or uncorrected market ‘failures’ impede the adoption of the technology or practice in question?
Institutional / social / cultural / political / consumer behaviour	<ul style="list-style-type: none"> • Is there institutional or political opposition to the implementation of the technology or practice in question? Is there supportive or prohibitive regulation in place? • Is there limited or no institutional capacity required to facilitate the technology or practice in question? • Are there any consumer behaviour-related barriers to accelerating decarbonisation?
Resource availability	<ul style="list-style-type: none"> • Is there an irregular or uncertain supply of resources required to implement or operate a technology or practice?
Other	TBD

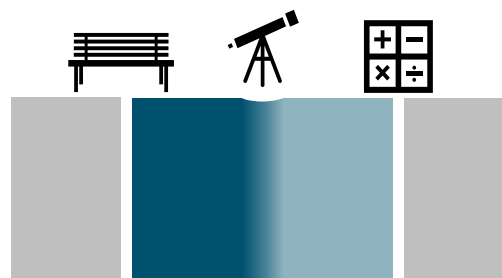
¹⁵⁷ Although Just Climate seeks to deliver the highest climate impact and attractive market returns, this is an aspiration and there is no guarantee this goal will be achieved.

¹⁵⁸ Just Climate. [Just Climate’s Approach to Climate-led Investing and Disclosure](#), September 2023.

¹⁵⁹ Refer to Table 8.1 in [The GHG Protocol for Project Accounting](#).

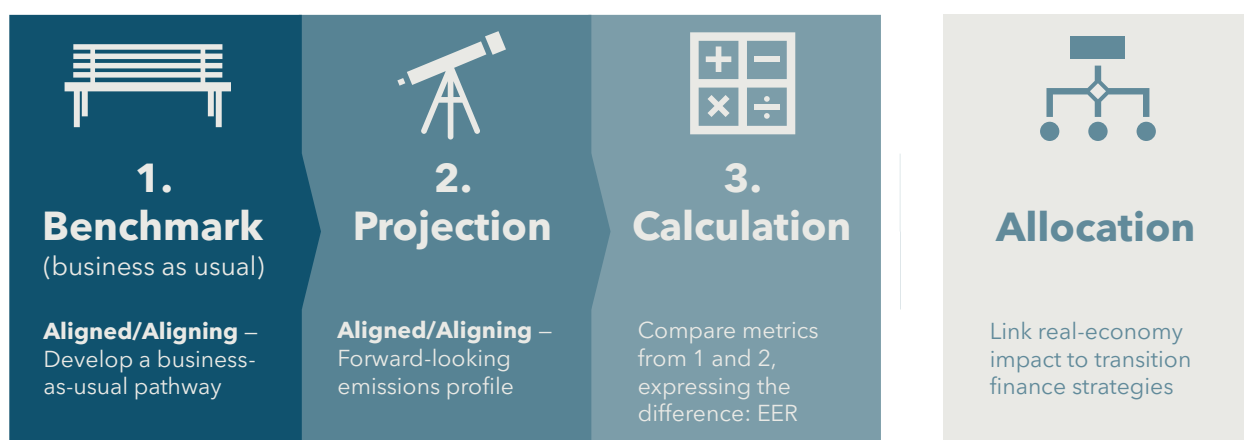
EER methodology

Potential emissions reductions from Aligned and Aligning



The Emissions Reduction Potential (ERP) method¹⁶⁰ considered for calculating EER for Aligned and Aligning entities is a forward-looking methodology applied over a specified time horizon, compared to a BAU baseline pathway. ERP seeks to measure the decarbonization efforts inside of an entity's emissions boundaries and can include both reductions of direct emissions (e.g., emissions occurring during an automobile company's manufacturing process) as well as indirect emissions in the entity's value chain (e.g., procuring electricity or sourcing steel to manufacture the automobile). When computing a forward-looking emissions profile, the method takes into consideration the reduction commitments and targets of entities, for example, based on existing net-zero transition plans.

Figure 18. The calculation steps for the ERP method



Constructing the Aligned/Aligning benchmark (Step 1)

Two approaches to begin construction of a BAU benchmark are contemplated here: first, using entity-specific current or historical emissions data and second, allocating sectoral and regional emissions to the entity. In both cases the starting point would be applied over a time horizon and then modified based on information judged to be known or probable, e.g., policies that target emissions reductions or business strategies that would impact operational emissions.

¹⁶⁰ This Note draws on key concepts from the CDP's [Emerging Climate Technology Framework](#) (2021), and CDP notes that the Framework was released requiring further iteration and development. The concepts drawn on include distinguishing between a reference and a projected scenario while adhering to principles necessary for implementation. These principles, as outlined on pages 11-17, are critical to ensuring credibility, achieving intended impacts, and avoiding unintended consequences. The use of ERP in this Technical Note has been applied more broadly across the whole economy.



Basis for business as usual

Guidance for a BAU benchmark might be provided by the Aligned or Aligning entity itself, based on its net-zero transition plan and/or related climate disclosures. If such information is not yet available, an emissions footprint could be constructed from sector and region-specific average emissions intensity factors and an entity's revenues and/or production data, depending on the denominator of the intensity factor. From a calculation point of view, intensities derived based on revenues may be subject to market volatility, e.g., price increases and product values, while physical intensities based on production data may be more directly tied to the GHG emitting activity, e.g., tonnes of steel produced.

Policy and market considerations

The BAU trend might be impacted by several factors, such as policy considerations, technology disruptions, market share, and sales growth. While current policies are known and could be included in a projection, proposed or anticipated policies may require assumptions. In both cases, relevant policies are those that may introduce demand efficiencies, e.g., building codes with more stringent insulation standards that reduce energy use, or may impact energy system emissions with a broader impact across the building sector (intermediate approach in [Table Z](#)).

Where the BAU benchmark has been constructed based on entity-specific emissions information, e.g., current emissions intensities (simple approach [Table 7](#)), market share, and business strategy are other considerations that may impact the projection over the selected time horizon. For example, if the company is planning to undergo changes, such as expansion into new markets or acquisitions, the BAU benchmark could accommodate these changes. Also, internal emissions reduction measures, such as efficiency measures, may be incorporated in a comprehensive analysis, though this is complex to do in practice.¹⁶¹

Constructing a BAU emissions budget

Alternatively, BAU could be derived from a BAU emissions budget reflecting the entity's sectoral and regional average emissions intensity (advanced approach in [Table 7](#)).¹⁶² This BAU budget would reflect "what would be allocated for a company of this size, given the sector and regional composition of the company". The starting point of this emissions budget could reflect the average carbon intensity of the sector/region, multiplied by the denominator of the entity.¹⁶³ This latter approach based on absolute cumulative emissions, though more advanced and complex to implement, may more objectively reflect the difference between a company that is further ahead than others in implementing climate mitigation measures. For example, when considering two steel companies of approximately equal size, steel company A that purchased an electric arc furnace in the past (an "early mover") might be at a lower starting intensity compared to steel company B that has not yet implemented mitigation measures (a "late mover"). Using the same BAU budget for the two steel companies, the EER calculated by the ERP method for the "early mover" could be relatively less than the EER for the "late mover". All else being equal, it could be said that the "late mover" is more attractive from an EER perspective. However, what is essential is also the entity's distance to a net-zero pathway, which might favor the more closely aligned "early mover" in attracting Transition Finance (see [Box 15](#)).

Once the starting point of the BAU benchmark has been established, other inputs are needed to assess how to project the current emissions profile over a chosen time horizon, as discussed below.

¹⁶¹ See "Abatement Capacity" in CPP Investments Insights Institute. [The Future of Climate Change Transition Reporting](#), October 2021.

¹⁶² This approach is inspired by the fair share carbon budget approach, e.g., IPCC calculates that the global emissions cannot exceed, from the beginning of 2020, 500 Gt of CO₂e in order to have a 50% chance to keeping global warming to 1.5 C. The amount can then be allocated to countries or sectors on a basis of "common but differentiated responsibilities and respective capabilities" IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023, p.19 (Paris Agreement 4.3), as outlined in GFANZ. [Portfolio Alignment Measurement](#), November 2022.

¹⁶³ For example, 2020 average t CO₂e/millions US\$ for the steel sector, multiplied by the millions of US dollars of revenue of the specific company.



Box 11. Examples of pathway construction in practice

Parties to the Paris Agreement develop their Nationally Determined Contribution (NDC) that includes construction of their projected emissions pathway based on planned mitigation actions. Their pathway can be based on historical emissions or current policies and measures that are already in place to decarbonize a country's economy. Additionally, NDCs might incorporate baselines for specific sectors that could be more detailed and tailored to the unique circumstances of the country's decarbonization feasibility. These are similar factors that could be considered in constructing a BAU benchmark. There is no one-size-fits-all approach; however, it is crucial that the BAU has been defined transparently, is well-documented, and has been developed based on sound methodologies to ensure credibility and comparability.

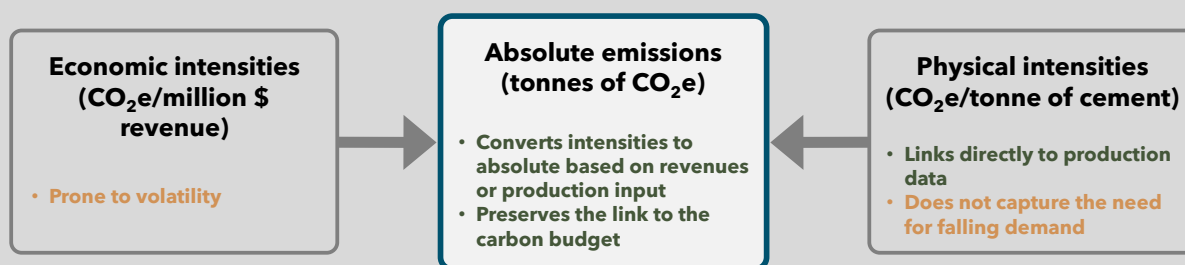
Projecting the business as usual over time

The choice of time horizon may depend on a few considerations. From a target-setting perspective, many frameworks call for at least one interim target year, e.g., 2030, and a final target year, e.g., 2050. Given the pressing need for nearer-term mitigation actions, the ERP calculation can be performed on a short-to-medium-term time horizon. This shorter time horizon would focus on the urgency of delivering emissions reductions in this decade and may also be deemed more credible as an entity's reduction activities could be more certain in the short term. Depending on availability of emission reduction solutions, different time horizons could also be considered. For example, a five-to-ten-year time horizon may be appropriate for the broader economy but for hard-to-abate sectors where low/no-emitting solutions are still being scaled, a longer horizon (e.g., 15 years) may be required.

Box 12. Calculation considerations

When constructing a BAU benchmark, a clear link between Transition Finance activities and the remaining carbon budget can be emphasized by converting intensities to absolute cumulative emissions. Such approaches are common in net-zero target-setting protocols.¹⁶⁴ [Figure 19](#) highlights the data flow from entity-specific intensities as the starting point and converting to absolute GHG emissions based on revenues or production input.

Figure 19. The use of intensities and absolute emissions for constructing the BAU pathway for the ERP calculation



Monitoring and updating

Updating BAU benchmarks will help the financial institution understand the drivers of EER. For example, as new policies are developed and come into effect, they may mandate efficiency measures and reductions that lay outside of the Aligned and Aligning entity's decisions. The GFANZ Secretariat notes that while these policy actions

¹⁶⁴ NZBA and NZAOA both report on sector targets with physical entities and absolute emissions for sub-portfolios.



may be mandatory, the implementation of such may still require financing and support. Updates should occur regularly, but this may be a significant resource challenge, especially with larger portfolios. Financial institutions could establish expected trigger events that may necessitate an update to benchmarks as part of their monitoring processes, which may include: policy developments, significant changes to the Aligned/Aligning entity's net-zero transition plan implementation strategy, etc.

[Table 7](#) provides a summary of the suggested methods grouped as simple, intermediate, and advanced.

Table 7. Potential approaches for Aligned/Aligning BAU benchmark

APPROACH	TIME HORIZON	BAU CONSTRUCTION	CONSIDERATIONS	DATA REQUIRED
1. Simple	10-15 years, with 2030 and 2035 as anchor dates	<ul style="list-style-type: none"> Current revenue or physical intensities of portfolio companies are held constant. Company-specific revenues or physical intensities are converted into cumulative absolute emissions based on revenues or production units over the period chosen. 	<ul style="list-style-type: none"> Decarbonization policies in relevant national markets Assumptions about market share and sales growth Historical GHG emissions trends 	<ul style="list-style-type: none"> Entity-specific GHG Emissions/Revenue Entity-specific GHG Emissions per unit of physical activity (for example CO₂e/tonnes of steel) Company revenues or production output
2. Intermediate		<ul style="list-style-type: none"> BAU has a specific forward-looking intensity trajectory based on region and sector-specific current policy scenarios (e.g., IEA STEPS, NGFS Current Policies reduction rates for industrial sectors, or MPP Sector Pathways).¹⁶⁵ The BAU trajectory starts from the entity's current economic or physical intensity and is translated into cumulative absolute emissions based on projected entity-specific production units or economic values (e.g., revenues) over the period chosen. 	<ul style="list-style-type: none"> Efficiency measures that can be expected from sector/entity Periodic updates: 3-5 years 	All of the above + <ul style="list-style-type: none"> Forward-looking current policies emissions intensity data (economic or physical), derived from, e.g., IEA STEPS, NGFS Current Policies for Industrials, or MPP Sector Pathways¹⁶⁶
3. Advanced		<ul style="list-style-type: none"> Creating a BAU emissions budget reflecting the entity's sectoral and regional average emissions intensity.¹⁶⁷ This approach creates a forward-looking, company-specific emissions budget reflecting the average carbon intensity of the relevant sectoral/regional composition of the entity. As a result, a company with a lower-than-average carbon intensity does better than BAU compared to its peers, all other things being equal. 		<ul style="list-style-type: none"> All of the above

¹⁶⁵ For example, IEA Steps are available for industry, transport, buildings, and agriculture sectors.

¹⁶⁶ Mission Possible Partnership. [Sector Transition Pathways](#).

¹⁶⁷ The entity-specific BAU starting point is adjusted for the BAU benchmark-specific intensity. The sector-specific BAU benchmark shape is transposed to the entity based on a sector-specific current policy scenario and other adjustment factors such as efficiency measures – for further information refer to Appendix 2: “Fair-share carbon budget” benchmark approach, of [Measuring Portfolio Alignment, Technical Considerations](#), 2021.



Calculating the Aligned/Aligning projection (Step 2)

This Note contemplates two sources of data for an Aligned or Aligning entity's forward-looking emissions profile: i) the entity's net-zero reduction target backed by a net-zero transition plan, and ii) historical emissions trends. As discussed in the 2022 GFANZ report *Measuring Portfolio Alignment*¹⁶⁸ in Key Design Judgment 6,¹⁶⁹ financial institutions may wish to balance actual historical emissions performance with forecasted plans based on a weighted target assessment¹⁷⁰ to gauge the ambition (of the commitment) against probable performance (actual emissions reductions achieved in the future). This may also be relevant as net-zero transition plans take time to fully develop. Some examples of where this approach may be relevant include:

- Where plans are focusing on Scopes 1 & 2 as well as material Scope 3 emissions and additional KPIs are to be added in the following years
- Where only long-term targets are reported with no short- or medium-term targets
- Where targets are not fully supported by the planned corporate activities, such as planned low carbon production and capex¹⁷¹

In these cases, financial institutions may wish to undertake due diligence on the quality of the entity's net-zero commitment using a weighting system, outlined in [Table 8](#). Such weightings may be tailored to the specific entity being assessed and may depend on a number of factors being in place, such as low carbon capex aligned with the target commitment as well as interim targets and adequate governance measures. For Aligned and Aligning entities weighting categories may also be drawn from the [Attributes for Aligned and Aligning section](#) of this Note. In addition, when applying this technical information and assessing the indicators that drive the target weighting, practitioners should be cognizant of the pathway used to set the target (1.5 degrees C, 2 degrees C, etc.). The weighting indicators in [Table 8](#) are not exhaustive but rather aim to highlight the most important considerations. Practitioners are encouraged to utilize the indicators they deem most predictive when assessing the likelihood that a company will achieve its stated targets. It is important to acknowledge potential challenges in obtaining necessary data for certain indicators and that widespread measurement standards for these indicators have yet to develop.

Box 13. Guidance on including Scope 3 emissions

Potential key attributes for Aligned/Aligning entities include emissions-based KPIs for Scopes 1 and 2, and Scope 3 value chain emissions if material. To help guide practitioners on best practices for including Scope 3 emissions¹⁷² for computing ERP, the [GFANZ report on Measuring Portfolio Alignment](#) (PAM) suggested the 40% and absolute magnitude criteria.

Scope 3 emissions for an entity are material if its respective sector average Scope 3 emissions contribute more than 40% of total sector average emissions and if the absolute magnitude of emissions is high.¹⁷³ The PAM sector analysis focused on high-impact sectors that are also critical in a number of net-zero target-setting guidance documents.¹⁷⁴ PAM flagged oil and gas, automotive, electric utilities, consumer staples, and chemicals as material Scope 3 sectors.

¹⁶⁸ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

¹⁶⁹ Refer to [Appendix E](#) for the key design judgments.

¹⁷⁰ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

¹⁷¹ Components of credible transition plans are covered in GFANZ. [Expectations of Real-economy Transition Plans](#), November 2022 and GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

¹⁷² GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

¹⁷³ The GFANZ [Measuring Portfolio Alignment report](#) (November 2022) suggested a 10 Mt CO₂e threshold above which Scope 3 emissions count as high.

¹⁷⁴ NZBA. [Guidelines for Climate Target Setting for Banks](#), April 2021; NZAOA. [Target Setting Protocol, Second Edition](#), January 2022.


Table 8. Illustrative weighting for Aligned/Aligning net-zero commitments

SCORE	WEIGHTING CATEGORIES	WEIGHT FOR ENTITY STATED TARGET [%]	WEIGHT FOR HISTORICAL EMISSIONS [%]
5 (Lowest)	<ul style="list-style-type: none"> No target commitment 	0	100
4	<ul style="list-style-type: none"> Long-term net-zero commitment No target validation 	25	75
3	<ul style="list-style-type: none"> Net-zero commitment Interim targets aligned to net-zero pathway No target validation Some executive oversight linked to target 	50	50
2	<ul style="list-style-type: none"> Net-zero commitment Interim targets aligned to net-zero pathway and covering material Scope 3 footprint Target validation by third party A net-zero transition plan has been established and executive oversight is linked to the target Low-carbon production and capex plans are in line with the target commitment 	75	25
1 (Highest)	<ul style="list-style-type: none"> Net-zero by 2050 commitment 2030 interim targets aligned to net-zero pathway and covering material Scope 3 footprint Target validation by third party A net-zero transition plan has been established and implemented and executive oversight is linked to the target Low-carbon production and capex plans are in line with the target commitment Actual emissions performance and KPIs are aligned with net-zero pathways for at least two continuous reporting cycles 	100	0

Monitoring and updating

Financial institutions are encouraged to update the emissions profile of an Aligned or Aligning entity as they implement mitigation efforts over time. The ERP method to calculate a forward-looking measure represents a projection of the difference between the BAU benchmark and the entity's expected emissions profile. Should the actual emissions reductions differ from the profile, it may influence the curve shape of the remainder of the profile and thereby affect the remaining EERs.



Box 14. Determining the materiality of EER with Expected Cumulative Emissions

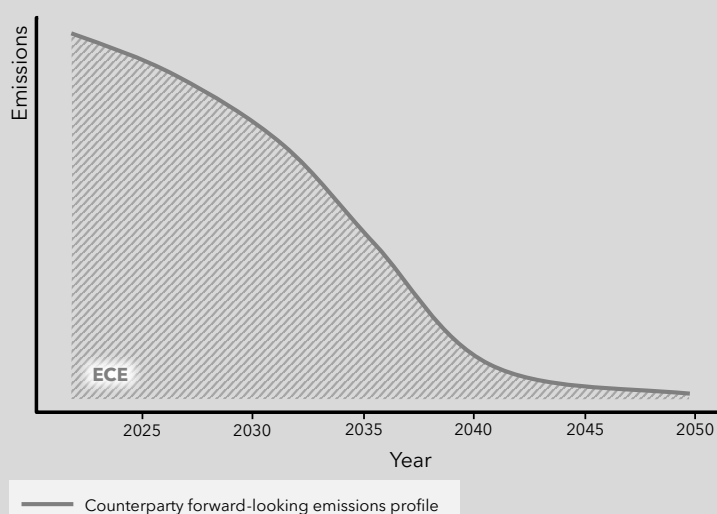
Determining the BAU scenario is often challenging as it involves making predictions of the emissions that would have occurred in the absence of a specific intervention or project. This prediction can be complex and may involve uncertainties tied to factors like economic growth, technological advancements, policy changes, and other external variables. In this context, Expected Cumulative Emissions (ECE) could be a valuable and complementary measure for assessing an entity's future absolute emissions in comparison to the remaining carbon budget as outlined by the IPCC.¹⁷⁵

Instead of relying on the projection of a hypothetical BAU, ECE represents the cumulative total expected remaining emissions of an entity on its journey to net zero.¹⁷⁶ Essentially, ECE denotes the remaining emissions of an entity based on the weighting of an entity's reduction commitment, as represented by the forward-looking area under the curve (Figure 20).

Linking to the remaining carbon budget, ECE could be beneficial for capital allocation and financial planning decisions within a specific sector. Higher emitting sectors would capture a larger share of the remaining carbon budget, which could be allocated to entities in the sector. Those entities using up a smaller amount of the remaining allocated sector budget would emerge as more closely aligned with the net-zero emissions goal. In terms of data needs, the approach would merely rely on emissions projections as outlined in Step 2 of this section.

ECE could be used as a key indicator to understand the materiality of emissions reduction impacts compared to an entity's overall remaining emissions by looking at the ratio between EER and ECE; for example, understanding the magnitude of avoided emissions of a 10MW solar farm developed by an electric utility relative to the utility's expected remaining emissions. A project is material if the ratio is significantly larger than one. Further work is required to decide on the optimal ratio.

Figure 20. Illustration of Expected Cumulative Emissions (ECE)



¹⁷⁵ IPCC. [AR6 Synthesis Report: Climate Change 2023](#), March 2023.

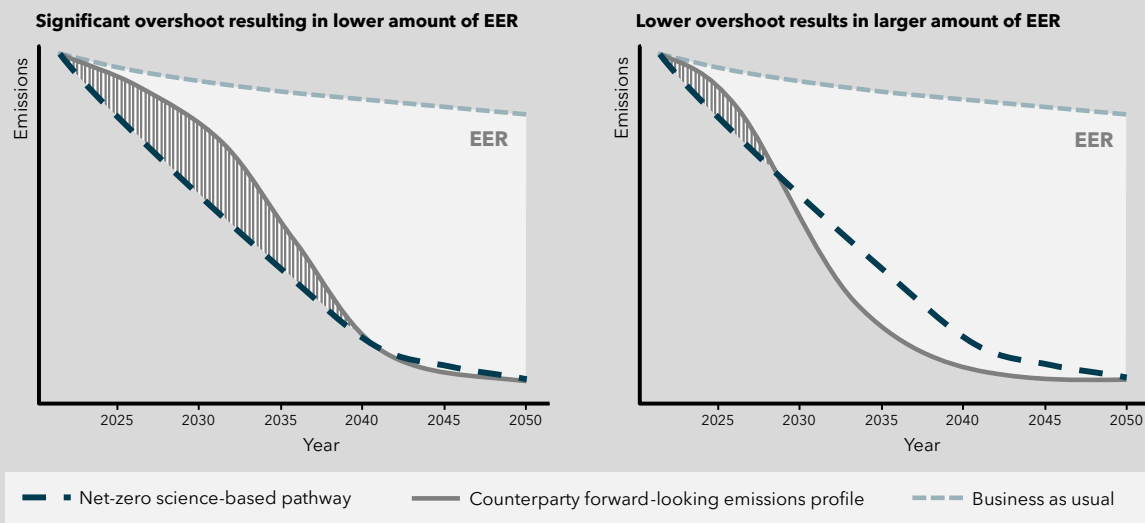
¹⁷⁶ This could also be an asset's remaining lifetime in the context of Managed Phaseout.

Box 15. The importance of the net-zero perspective

The 2022 GFANZ [Measuring Portfolio Alignment report](#) (PAM) discussed assessing alignment to a net-zero pathway by comparing an entity's projected net-zero emissions profile with a net-zero benchmark, based on cumulative emissions. Understanding how close an entity is to the net-zero benchmark is crucial as it provides insight on the materiality of EERs based on the ERP method in the net-zero context.

One portfolio alignment measure discussed in PAM is the benchmark divergence metric. It expresses a carbon budget over- or undershoot based on an entity's reduction commitment over short-, medium-, or long-term time horizons versus a net-zero benchmark. The lower the differential to the net-zero benchmark, the closer an entity is to becoming aligned to net-zero. The graph on the left in [Figure 21](#) depicts a company overshooting its net-zero benchmark by a significant margin, which results in a smaller EER compared to the company on the right that demonstrates a lower overshoot, resulting in a relative higher amount of EER over the assessment period.

Figure 21. Illustration of medium to long term vs. short term decarbonization efforts





Calculating the Aligned/Aligning EER (Step 3)

Suppose a financial institution has decided to direct financing to a high-emitting sector where it has strong stakeholder relationships and assume there are two opportunities (ChemCo A and ChemCo B) to which the financial institution could direct financing. In making its decision, it would like to assess the quantity of emissions reductions it could expect for similar amounts of financing. The current emissions intensities for ChemCo A is at 231.1 t CO₂e/US\$ and for ChemCo B it is 690.8 t CO₂e/US\$.

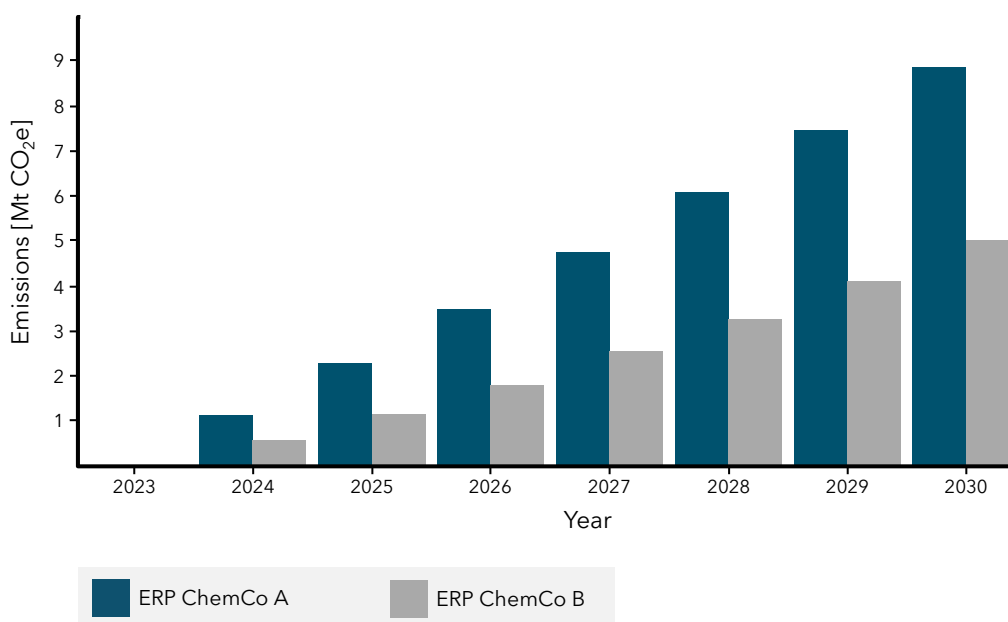
ChemCo A has a well-established net-zero transition plan with clearly outlined mitigation activities and science-validated reduction targets of Scopes 1, 2, and 3, aiming for a 50% reduction against a 2023 baseline. On the other hand, ChemCo B aims to reduce total GHG emissions by 30% in 2030 compared to a 2023 baseline, but this target lacks scientific validation and the company has not disclosed a concrete plan or announced specific abatement actions. Despite this, ChemCo B exhibits twice the growth potential of ChemCo A.

On a current intensity basis and taking into account the reduction commitments of the two companies, it would appear that ChemCo B could provide more emissions reductions per financing dollar, all else being equal.

However, the financial institution's analyst wishes to take into account the companies' reduction targets and net-zero transition plans when computing EER for inclusion in the financial institution's broader financial analysis process.

[Table 9](#) provides input for the ERP calculations for ChemCo A and ChemCo B using the simple BAU approach outlined in [Table 7](#) for the period 2023 – 2030. The BAU pathway is determined by multiplying the companies' current intensity by revenue growth projections over the target period.

Figure 22. Illustration of ERPs for ChemCo A and ChemCo B



Emissions projections for both companies involve applying a linear reduction rate to the overall target commitment and multiplying it by revenue growth projections. If both chemical companies' reduction targets were accepted at face value, this would lead to a cumulative EER of 73 million tonnes (Mt) CO₂e for higher intensity



ChemCo B, compared to 45 Mt CO₂e for ChemCo A (Table 9). However, when applying a target weighting to the emissions projections, the scenario changes. Due to the completeness of the reduction target, lower intensity ChemCo A is assigned a target weighting of 75%, meaning that 75% of the 50% reduction commitment is considered for the period 2023 - 2030. In contrast, high-intensity ChemCo B receives a low target weighting of 25% due to a small number of weighting indicators. This translates to a reduction of only 7.5% (25% x 30%) for the entire target period (Table 9). Considering the target weighting thus results in a more favorable cumulative EER of 34 Mt CO₂e for ChemCo A, compared to just 18 Mt CO₂e for ChemCo B.

Table 9. Assessing ChemCo A and ChemCo B

WEIGHTING INDICATORS	CHEMCo A	CHEMCo B
Short-term target	yes	yes
Long-term target	yes	no
Target validation	yes	no
Net-zero transition plan	yes	no
Planned capex for mitigation	yes	no
BASLINE INFORMATION	CHEMCo A	CHEMCo B
Current intensity [t CO ₂ e/US\$ revenue]	231.1	690.8
Revenue [million US\$]	89,381	72,491
Revenue growth projection	2%	4%
Current BAU emissions [t CO ₂ e]	20,645,949	50,076,783
2030 BAU emissions [t CO ₂ e]	23,727,192	65,897,630
EMISSION PROJECTION INFORMATION	CHEMCo A	CHEMCo B
2030 reduction commitment from 2023 baseline	-50%	-30%
Weight placed on stated target	75%	25%
Resulting 2030 reduction rate	$0.75 \times 0.50 = -37.5\%$	$0.25 \times 0.3 = -7.5\%$
2030 intensity [t CO ₂ e/US\$ revenue]	144.4	638.3
2030 unweighted target emissions [t CO ₂ e]	11,863,596	46,128,341
2030 weighted target emissions [t CO ₂ e]	14,829,495	60,955,308
CUMULATIVE unweighted EER [t CO₂e] from 2023 - 2030	45,638,332	73,277,916
CUMULATIVE weighted EER [t CO₂e] from 2023 - 2030¹⁷⁷	34,228,749	18,319,479

Although at the outset ChemCo B appeared to offer the greater amount of absolute emissions reductions, when factoring in the quality of the target commitments ChemCo A emerges as the company with the higher and more credible EER. Therefore, all else being equal, the financial institution may propose ChemCo A as the preferred investment opportunity. Given the institution's strong sector relationships and factoring in an engagement strategy, it may propose ChemCo B as a target for engagement.

¹⁷⁷ Please refer to the online appendix for detailed calculations.

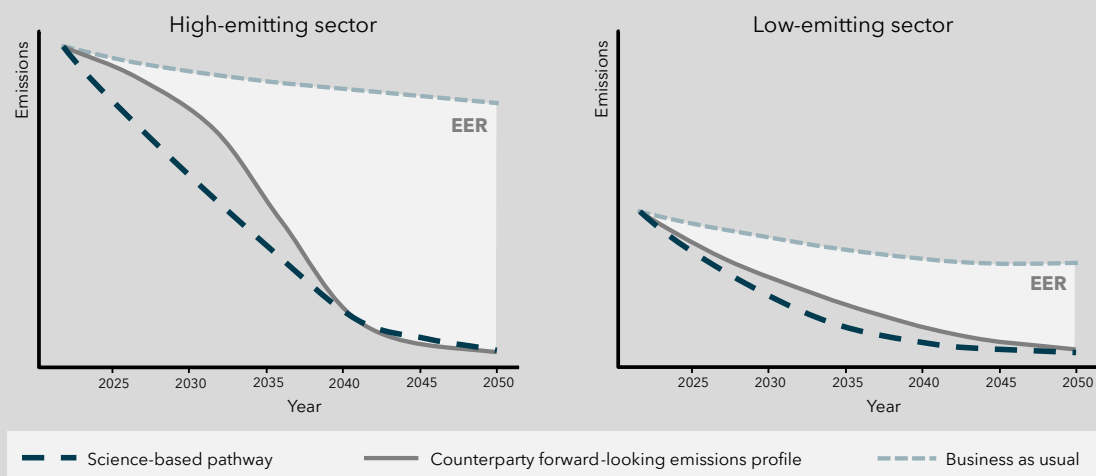


Box 16. Further considerations for EER on Aligned and Aligning entities

Driving Transition Finance to high-emitting sectors

The GFANZ definition of Transition Finance encompasses both low and high-emitting sectors, recognizing financing and support to help transform high-emitting sectors will play a pivotal role in shaping future low-carbon economies. In the context of Aligned and Aligning, the Mission Possible Partnership¹⁷⁸ provides sector transition strategies for seven critical sectors¹⁷⁹ that provide useful input about average intensities for high-emitting sectors, relevant solutions, and achievable target intensities for particular timeframes. As illustrated in [Figure 23](#), providing financing to high-intensity sectors, such as cement and steel, will result in a higher absolute EER compared to providing financing to low-emitting sectors, such as video conferencing software.

Figure 23. EER for high- vs. low-emitting sectors



¹⁷⁸ Mission Possible Partnership. [Sector Transition Strategies](#).

¹⁷⁹ Aviation, trucking, shipping, steel, aluminum, concrete and chemicals.



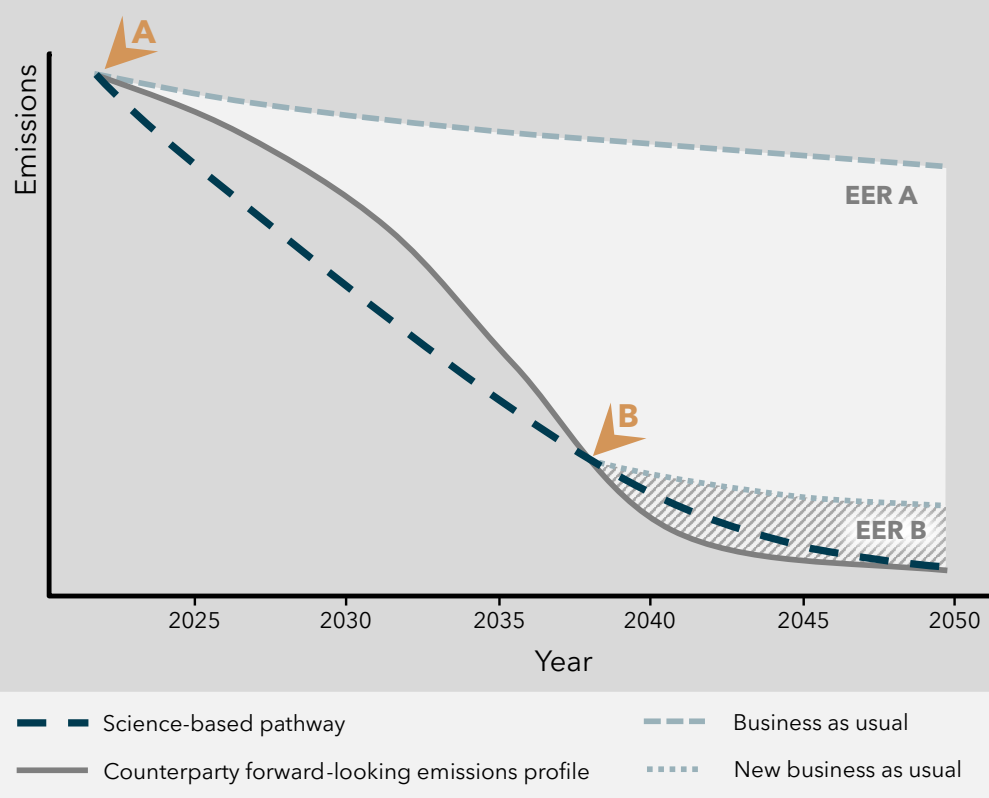
Box 16. Further considerations for EER on Aligned and Aligning entities

continued

Timing of the financing decision

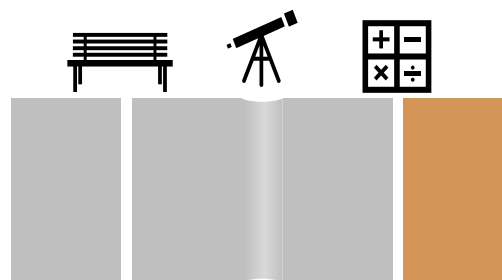
For Aligning entities in particular, the timing of financing decisions may impact the quantity of EERs that can be claimed. The earlier the financial institution adds an Aligned/Aligning entity to its portfolio the higher the BAU. For example, choosing to finance an entity that is in the initial stages of alignment (see point “A” in [Figure 24](#)) would indicate that all of the EER from that point to the end of the time horizon might be claimed (denoted “EER A”). In contrast, choosing to finance an entity that is already Aligned (refer to point “B” in [Figure 24](#)) could result in a significantly reduced EER (see the striped area marked “EER B”). This is analogous to expecting a higher return for the risk of financing early-stage entities (point “A”) and conversely, a lower expected return for financing mature entities (point “B”). Where the entity is already Aligned, other measurement approaches for these firms, i.e., portfolio alignment measures, may be more decision-useful.

Figure 24. Impact of timing of the financing decision on available EER



EER methodology

Potential emissions reductions from Managed Phaseout



Retiring high-emitting assets early represents an important decarbonization strategy to achieve net-zero emissions. The 2022 GFANZ [The Managed Phaseout of High-emitting Assets](#) report discussed a high-level approach to this key transition financing strategy and subsequent reports, particularly on the Managed Phaseout of CFPPs in Asia Pacific (the “APAC MPO report”) have further developed guidance.¹⁸⁰ For example, the APAC MPO report emphasizes a three-step process for the phaseout of high-emitting assets at the government, entity, and asset level, which ensures meaningful impact by linking climate impact, financial viability, and socio-economic considerations, as well as anchoring the phaseout with robust real-economy net-zero transition plans.

When quantifying the EER for Managed Phaseout strategies, the source of the emissions reductions derives from a high-emitting asset’s operations (Scope 1-3). Therefore, the ERP quantification method proposed in the [Potential emissions reductions from Aligned and Aligning section](#) may be most appropriate.

Constructing the benchmark (Step 1)

Basis for business as usual

An initial BAU benchmark could be grounded on current emissions data of the Managed Phaseout asset, for example current absolute emissions and intensities of a coal-fired power plant (CFPP). The emissions history of the high-emitting asset may provide a starting point for the business-as-usual benchmark. Moreover, business forecasts will be useful to gauge the plant’s future energy production. For example, for a CFPP, in addition to generation capacity, utilization rate, and efficiency, power purchasing agreements that are in place would be relevant data points.¹⁸¹

Projecting the business as usual over time

Various types of information might be used to adjust the starting point for the BAU benchmark. In the case of a CFPP, for example, system-level factors including government commitments and regional energy transition pathways over an extended timeline could be included to reflect shifting demand and the potential disruptive impact of low or no-emission alternatives.

At the national level, the baseline might be constructed with science-based pathways, such as the IEA Stated Policies Scenario (STEPS) for the power, oil, gas, and coal sectors’ phaseout dates. In line with such an approach, the BAU benchmark for the CFPP could incorporate gradual reductions in future planned energy generation capacity, based on a projected transition to renewable energy and coal phase-out dates at the entity and national level.

¹⁸⁰ GFANZ. [Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific](#), December 2023.

¹⁸¹ The GFANZ Secretariat recognizes that the most straight-forward Managed Phaseout opportunity may be project or use-of-proceeds financing structures; however, this Note allows for potential future structures that encompass broader corporate entities or corporate financing. Regardless, by definition, Managed Phaseout opportunities would be linked to specific physical assets.



Future retirement timelines are fundamental to constructing the BAU benchmark for a Managed Phaseout transaction for the CFPP. BAU retirement timelines could be based on a number of factors, such as:

- Design life (ceiling on plant age) – for example, design life for CFPPs in the APAC region has been approximated to be 40 years¹⁸²
- Economic lifetime, taking into account policy and energy market developments, such as adoption pathways for the switch to renewable energy
- Economic retirement year – for example when the cost of operating a plant exceeds expected revenue, and/or when operating costs exceed the plant's value to the power system, especially in terms of its contribution to grid reliability

Given potential complexities in selecting or integrating technical (design life) and economic information, financial institutions are encouraged to be transparent about assumptions applied to support the ERP calculation.

Table 10. Example for constructing Managed Phaseout business-as-usual benchmark

	BAU CONSTRUCTION	POTENTIAL CONSIDERATIONS	DATA REQUIRED
Simple	<ul style="list-style-type: none"> • Current plant (asset) intensity levels are held constant for the projection period • Physical intensities are translated into cumulative absolute emissions based on entity-specific production units over the period chosen 	<p>A. National targets on phaseout of high-emitting asset</p> <p>B. Entity/asset-level operation and depreciation conditions</p>	<ul style="list-style-type: none"> • Current generation capacity of the high-emitting asset • Associated emissions factor of the high-emitting asset based on plant efficiency • Retirement timeline based on plant design life or economic timeline • Plant utilization rate • Plant operating life and technical age
Advanced	<ul style="list-style-type: none"> • The shape of future expected reduction trajectories (e.g., based on IEA STEPS or NGFS Current Policies) is applied to current plant intensity for the projection period 		

Constructing the Managed Phaseout projection (Step 2)

Logistically, the phaseout of a physical asset involves a number of steps between the commitment and the final retirement of the asset. These steps may encompass both technical and social considerations, including initiatives such as demand-side reductions and the scaling of renewable energy, and therefore may reflect interim emissions reduction targets and detailed phase-out plans. Where this information is available and judged to be credible, any steps that impact the interim emissions profile of the asset can be integrated with the forward-looking emissions profile.

Practitioners may consider applying a target weighting, similar to the one suggested in [Potential emissions reductions from Aligned and Aligning](#) to conduct thorough due diligence on the phaseout commitment. Such an assessment could also hold significance to help prevent carbon leakage risks. For example, if the net-zero commitment is aligned at both the operator and asset level, the risk of increased operations of similar high-emitting assets in less regulated regions of the operator is minimized.

¹⁸² Global Energy Monitor. [Global Coal Plant Tracker](#), 2023.



Monitoring and updating

Given the numerous logistical and other steps to a Managed Phaseout plan, and in line with the recommendations in the Metrics and Targets theme of the NZTP,¹⁸³ additional KPIs can be used to track phaseout progress, such as:

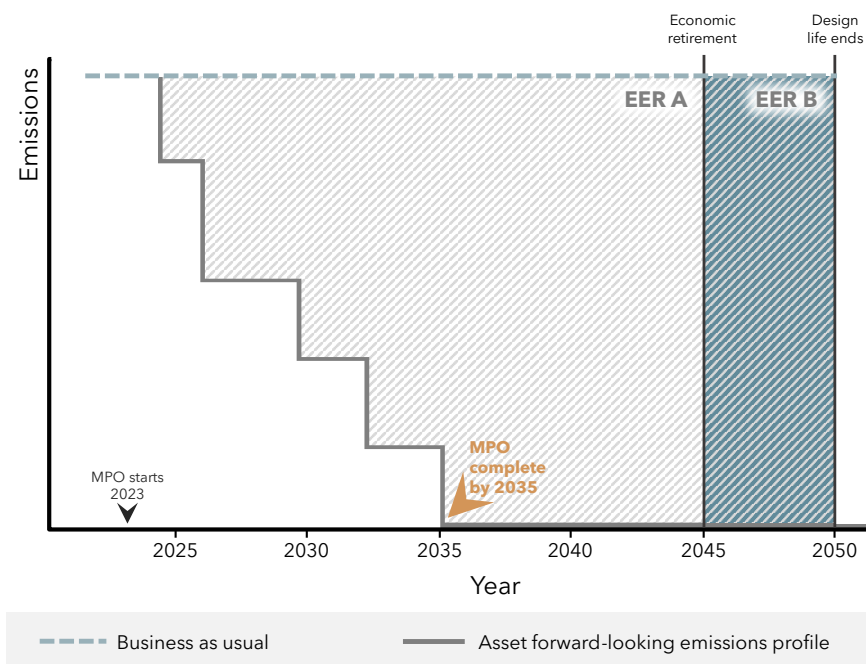
- Meeting interim target milestones, such as step-wise emissions reductions
- Allocating capital expenditure according to the phaseout plan
- Just transition considerations, such as local, socioeconomic (e.g., retraining the workforce), political, and cultural factors

Updating the emissions profile as the Managed Phaseout entity implements mitigation efforts will also provide good monitoring of the progress of the plan. Successful Managed Phaseout transactions can be incorporated into monitoring at the portfolio level as well.

Calculating Managed Phaseout EER: An example and additional metrics (Step 3)

Figure 25 shows a sample ERP calculation for the early phaseout of a CFPP. The plant has set a number of interim milestones for capacity reduction starting in 2023 before retiring early in 2035, with adjusted utilization rates over the retirement period. The area bounded by this projection, the constant benchmark, and the BAU retirement represents the EER. Depending on the chosen BAU retirement date, the EER will be larger (EER B) or smaller (EER A). In this example, the business-as-usual operation of the asset (the benchmark) is assumed to maintain the asset's current generation capacity and emissions intensity over the plant's lifetime. An economic retirement date that also includes policy changes to the energy mix and demand projections for the asset shows an earlier date and smaller EER than the design life end date. Hence, the choice of the baseline retirement date is a key decision point (refer to [Projecting the business as usual over time](#) above).

Figure 25. Illustration of EER of a Managed Phaseout asset



¹⁸³ GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022.

Use case considerations

Testing and adoption

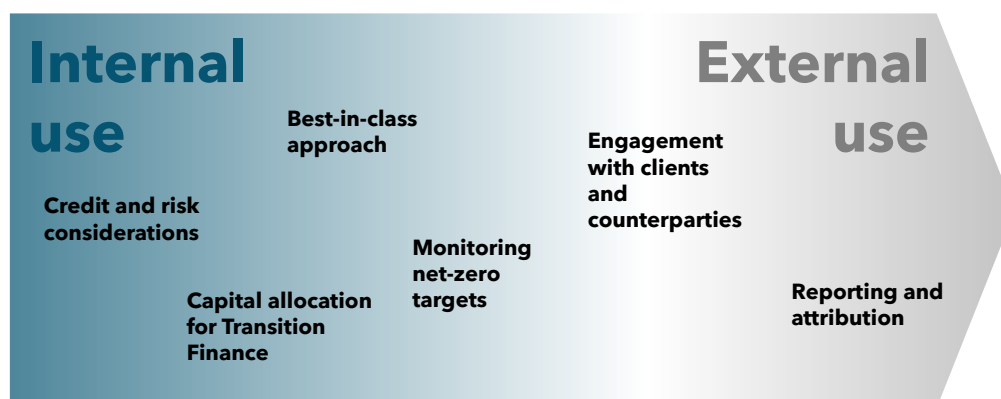
EER may be used to support different stages of a financial institution's net-zero transition. At the outset, the measure may provide additional and complementary insight for internal institution-specific processes, provided consistent approaches and data sources are used throughout the institution or within relevant departments. With further development, EER may be used externally to support the implementation of net-zero transition planning. Potential use cases and how the use of EER may evolve over time are outlined in [Figure 26](#).

In the short-term, financial institutions may consider employing EER as a tool for internal decision-making, for example, to allocate financing and support to different opportunities. Alongside conventional financial metrics and other climate-related indicators, EER could serve as an input to identifying opportunities with greater expected emissions reductions in the real economy.¹⁸⁴ Consistent and regular updating of EER measures, for example for companies in a specific sector, could also be used to monitor Transition Finance and to implement an institution's NZTP.

The GFANZ Secretariat recognizes the complexities in the implementation of decarbonization contribution approaches. In addition to overcoming data limitations, internal processes and IT systems will also need to be established to support the collection, measurement, quality assessment, and integration of the data and other information to support ongoing EER calculations. Please see [Areas for further work](#) for further discussion.

Over time, the uptake of EER as an internal decision-making tool may result in financial institutions and other organizations making improvements and refinements to the methodologies and may lead to improved levels of data availability. With such refinements, the EER could also input into external stakeholder management and eventually into disclosure and reporting. As per the NZTP Engagement Strategy theme, engagement with clients and portfolio companies is a key part of enabling emissions reductions. As such, EER could be used as a priority indicator for engagement targets, such as entities with large EER potential that have yet to develop a transition plan (see [Table 5](#)).

Figure 26. Illustrative EER adoption road map



¹⁸⁴ The EER might also have potential for inclusion within other existing frameworks to prioritize investment opportunities in service of net-zero targets. For example, the EER could feature into assessments of best-in-class opportunities to prioritize financing or be used to guide engagement efforts over time.

Allocation and other adjustments

Financial institutions may consider allocating a portion of an asset or entity's EER to support internal analyses and assessments that inform their net-zero transition plans. In such instances, financial institutions will need to make assumptions or determine the approach for allocating EER.

While there is no existing allocation approach to be applied specifically to EERs, one option is to follow the Partnership for Carbon Account Financials (PCAF) standard's attribution factor that is based on the ownership principle. The financial institution's share of EER using this allocation approach would be proportional to the share of its exposure relative to the total value of the borrower or investee (selected based on type of financing, e.g., debt or equity)¹⁸⁵ (as shown in [Equation 2](#)). Further work on details and implications is required to develop or modify a more specific allocation approach for EER.

Equation 2. PCAF ownership concept

$$\begin{array}{c}
 \text{Financed emissions} = \sum (\text{Attribution factor} \times \text{Emissions}) \\
 \downarrow \\
 \text{Allocated EER} = \sum (\text{Attribution factor} \times \text{EER})
 \end{array}$$

As discussed in [Part I](#), different financing structures and asset classes may be associated with higher or lower degrees of association on decarbonization impacts. Specifically, financing structures with known use of proceeds support a more direct link between the financing purpose or engagement activity and the contribution to reducing emissions in the real economy. Where proceeds are unknown or general purpose, financial institutions should be transparent about the lower degree of association when allocating EER.

Most common asset classes with known use of proceeds are corporate and project finance activities, such as corporate and project-specific bonds or loans. The known use of proceeds for these financing instruments could, moreover, be linked to the key attributes outlined in [Part I](#) of this Note to ensure that the transaction is credible and contributes to real-economy decarbonization in a meaningful way.

Another relevant consideration is the distinction between primary and secondary market exposures and connecting this consideration to the two main levers financial institutions have: actively financing and supporting the transition activities in the primary market or engaging to incentivize companies to operate in a more climate-friendly manner.

Financial institutions may also find it necessary to make adjustments to EER to better reflect factors such as risk, time horizon, and the time value of carbon. Further work is required on how these adjustments may be incorporated. Please refer to [Areas for further work](#) for discussion.

Aggregation

Given the distinct approaches introduced in this Note for calculating EER, the measure is not suited for aggregation at the portfolio level. Rather, financial institutions may use the EER approach to understand the emissions reduction impact for each of the four key transition financing strategies, such as the level of AE-EERs of Climate Solutions holdings. The EER for each of the key transition financing strategies should therefore be

¹⁸⁵ PCAF. [Financed Emissions: The Global GHG Accounting & Reporting Standard Part A](#), December 2022.

measured and assessed separately and not aggregated together across different transition financing strategies (e.g., the EER for Managed Phaseout to be considered separately from the EER for Climate Solutions).

In addition, the EER measure should not be netted with Scope 1, 2, or 3 financed emissions (i.e., portfolio footprint or GHG inventory) for the financing strategy. For example, Scope 1 emissions for Aligning holdings should be measured and assessed separately from the EER for those same holdings.

Backtesting and verification

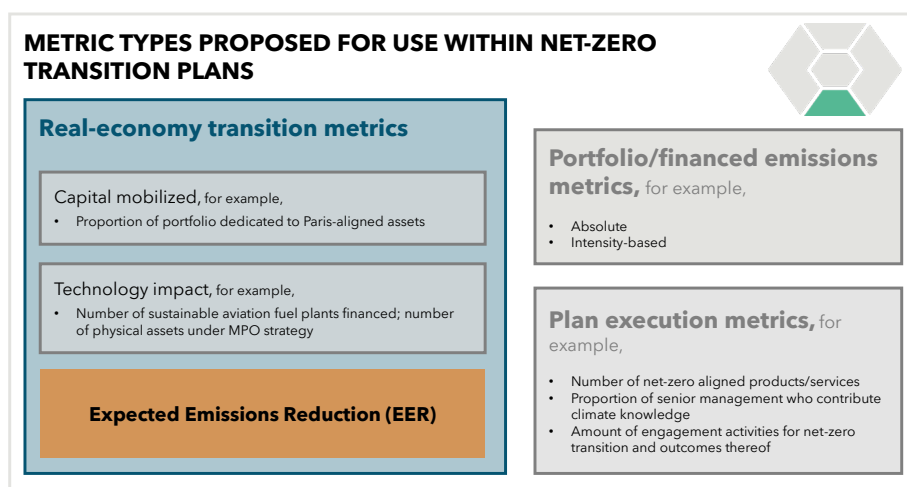
Comparing forward-looking projections of allocated EER against realized emissions reductions on an annualized basis may provide more transparency regarding the actual real-economy impact achieved over time. The greater the alignment between realized reductions and projected estimates, the higher the confidence in the accuracy of the projected numbers can accrue over time. In essence, such an iterative process of comparing projections with actual results may improve the quality of EER predictions over time.

Verification of assumptions, data sources, and methodologies by third-party sources, where available, would support and enhance credibility.

Assessment and integration with other KPIs

As discussed in this Note, EER may be used by financial institutions as a complementary KPI to existing metrics in their internal assessments to support decision-making, inform net-zero transition plans, and to support their Transition Finance planning and implementation processes. As illustrated in [Figure 27](#), financial institutions may find it helpful to assess EER alongside other KPIs in a dashboard format to measure and monitor progress against strategies over time. The KPIs and variables included in the dashboard should be adapted in ways that best support objectives. For example, counterparties' production plans, engagement, and stewardship statistics could be featured alongside capturing capital deployed. Also, assessing EER in the context of Expected Cumulative Emissions may offer additional insight into the materiality of the emissions reductions in the context of an entity's overall remaining emissions. Dashboard approaches are one option in supporting financial institutions in their assessments of new and existing financial opportunities.

Figure 27. Transition-related metrics for input to internal analysis¹⁸⁶



¹⁸⁶ The three types of metrics shown in this conceptual diagram are drawn from the Metrics and Targets theme in the NZTP framework (see GFANZ. [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#), November 2022).

As financial institutions enhance the measurement and use of EER in their internal assessments, EER may be integrated with existing metrics to develop new KPIs. As an example, EER may be assessed in conjunction with return on investment (ROI), a key concept to assess the profitability of a financing or investment decision. While ROI quantifies the return from an investment relative to its cost, the “emissions return” may capture the expected emissions return represented by EER, relative to financing deployed.

An aerial photograph of a modern, multi-story building complex. The building features a repeating pattern of glass-enclosed wings and concrete structural elements. Each floor has a green roof with various trees and shrubs. The building is surrounded by more greenery, and the overall design emphasizes sustainability and integration with nature.

Case study

Synopsis

This section presents a hypothetical case study¹⁸⁷ to demonstrate how a financial institution may utilize the attributes of the four key transition financing strategies and EER approaches to inform its net-zero transition plan and support decision-making. This case study is not exhaustive of all potential applications of the concepts presented in this Note. While this case study primarily illustrates the use case within the context of direct investment and management of portfolio companies, the concepts and decision points outlined are applicable and relevant to a range of financial sectors, such as banks, insurance companies, etc. Financial institutions are encouraged to consider the unique characteristics and requirements of their net-zero transition plan, specific asset classes, portfolios, business models, sectors, and regions when applying these concepts in practice.¹⁸⁸

FI Global, a global institutional investor that has exposure across diverse asset classes worldwide, developed a comprehensive net-zero transition plan last year. The transition plan articulated priorities across the GFANZ four key transition financing strategies, with a focus on:

- i) **Implementation Strategy:** Capital mobilization (e.g., via new project financing, new investments, etc.) toward Climate Solutions and Managed Phaseout opportunities; and
- ii) **Engagement Strategy:** Through engagement and other means, support Aligning entities already in the portfolio to reach alignment to net-zero over time.

This year, as FI Global has started operationalizing its net-zero transition plan, it encounters a series of complex decisions. A pipeline of potential financing/investment opportunities has emerged, each requiring further assessment to determine if they fall under Climate Solutions or Managed Phaseout and therefore within scope of its Implementation Strategy. Additionally, FI Global has established targets for reducing its financed emissions and is concerned that some of these opportunities may lead to an increase in financed emissions if they are added to FI Global's portfolio.

- **Opportunity A:** To invest \$100M for a 50% equity stake in an electric vehicle company based in Europe.
- **Opportunity B:** To invest \$100M through a sustainability-linked loan with specific KPI-linked targets tied to the phaseout of a coal-fired power plant asset in Asia.

At the same time, FI Global is evaluating its existing portfolio exposure to a high-emitting entity, questioning whether the entity is Aligning and therefore in scope with its Engagement Strategy. The portfolio company (SteelCo) is also requesting additional financing to support decarbonization efforts, and FI Global needs to consider whether providing this funding supports its Implementation Strategy.

- **Portfolio company and Opportunity C:** 10% equity stake in a steel manufacturer based in South America; company management has requested \$100M debt financing to support decarbonization efforts, including the development of Carbon Capture, Utilization, and Storage (CCUS) technology, though use of proceeds is not specified.

FI Global is faced with several decision points:

- 1) To support its Implementation Strategy, which of the opportunities fall under Climate Solutions and/or Managed Phaseout?
- 2) Given a limited pool of capital for financing and investment, in addition to financial considerations and all else being equal, what other factors should FI Global consider in the prioritization of these opportunities in a manner that supports its net-zero transition plan?

¹⁸⁷ Please note that the case study and details provided are fictional. Any resemblance to actual organizations or entities is purely coincidental and unintentional.

¹⁸⁸ For example, some financial institutions may prioritize financing and enabling of all four key transition financing strategies within their transition plan, while others may prioritize only one strategy given the nature of its asset class/portfolio.

- 3) How should FI Global address concerns regarding an increase in its financed emissions? How can forward-looking metrics such as the EER complement and/or support the assessment?
- 4) Should FI Global proceed to engage with its portfolio company as part of its Engagement Strategy?
- 5) What factors should FI Global consider when deciding whether to provide the portfolio company with additional financing (Opportunity C)?

Details

Opportunity A: CarCo

CarCo is a privately owned electric vehicle (EV) manufacturer headquartered in Europe. Established in 2019, CarCo quickly emerged as a leader in the growing European EV market, offering a range of vehicles powered by advanced battery technology, ensuring long-range capability and optimal efficiency.

By replacing traditional gasoline and diesel-fueled vehicles with EVs, CarCo contributes significantly to the reduction of GHG emissions in the European transportation sector. CarCo also made a commitment to sourcing energy from renewable providers and its strategic placement of charging stations across Europe are integral components of its strategy to reduce carbon emissions associated with EV charging.

FI Global has been presented with an opportunity to invest \$100M for 50% equity ownership in CarCo.

Opportunity B: CoalCo

CoalCo is a coal-fired power plant (CFPP) that has been serving the energy needs of an industrial region in Asia since 2010. CoalCo has a 5 million MWh generation capacity and currently emits about 3 million tonnes (Mt) of CO_{2e} annually. CoalCo's owner-operator is committed to phasing out its portfolio of coal assets in support of the region's shift toward cleaner alternatives and has established a phaseout plan detailing resource allocation and targets in support of CoalCo's phaseout.

To achieve this goal, the owner-operator is looking to issue a sustainability-linked loan (SLL) with the use of proceeds linked to the reduction of CoalCo's energy production. Meeting the target thresholds will result in a step down of interest rates for the duration of the loan with important interim reduction thresholds in 2025 and 2028, incentivizing a 50% reduction in coal-based energy production within the next five years and a complete phaseout of the plant by year ten, which is 15 years ahead of the end of its design life. To ensure transparency and accountability, a third-party auditor will be engaged to verify CoalCo's progress toward meeting the performance targets stipulated in the SLL.

FI Global has an opportunity to support the phaseout of CoalCo through \$100M of SLLs.

Portfolio company and Opportunity C: SteelCo

FI Global has 10% ownership in SteelCo, a leading steel manufacturer based in South America. SteelCo has been supplying high-quality steel to various industries in the region including construction and infrastructure since 1975.

SteelCo's operations are characterized by traditional steel manufacturing processes, which are highly energy-intensive and result in substantial GHG emissions. As of now, SteelCo emits nearly 8 Mt CO_{2e} annually, placing it among the highest emitting steel manufacturers in the region. The reliance on fossil fuels for energy and lack of modern, energy-efficient technologies contribute to its significant emissions. As a result, SteelCo has faced criticism from environmental groups and regulatory bodies for its lack of efforts at sustainability. Last year SteelCo's management recognized the need to modernize its processes and invest in cleaner, more sustainable technologies to reduce its emissions.

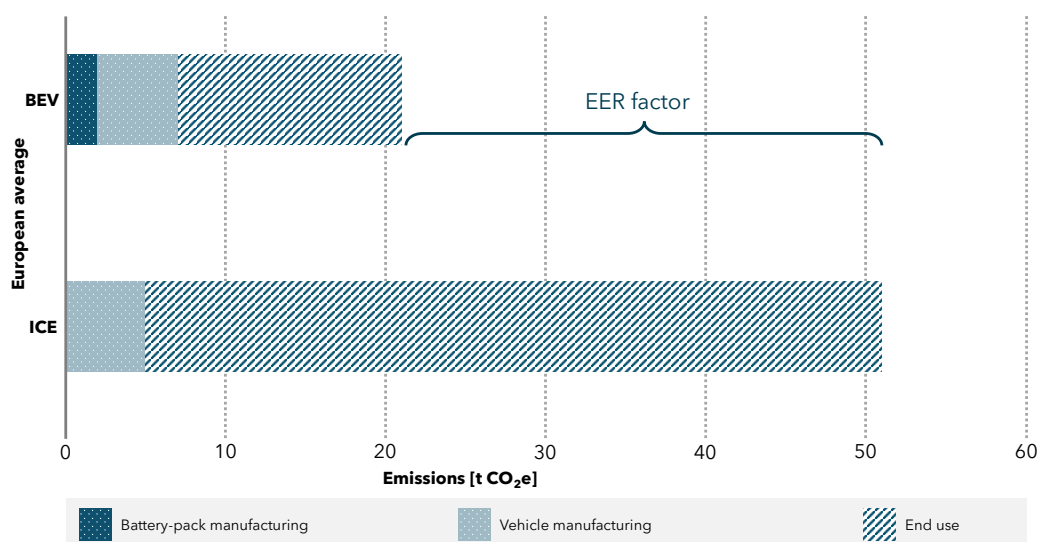
SteelCo management has requested \$100M debt financing to support broad decarbonization efforts, including the development of CCUS technology. The use of proceeds is not specified, but SteelCo has made a public net-zero commitment and shared its interim targets of a 20% decrease in Scope 1 & 2 emissions by 2030 and 50% by 2035. To help achieve its net-zero commitments, SteelCo has been developing a net-zero transition plan that is on track to be published by the end of this year. Also, much of SteelCo's machinery is approaching the end of its life cycle in the next couple of years. Given investment cycles in the steel industry, SteelCo's management acknowledged that without a change in its practices now, SteelCo risks locking in high-emitting technologies.

Analysis

In light of the decisions facing FI Global, the first step is to determine if the potential opportunities A, B, and C and its portfolio company exposure fall within the scope of its net-zero transition plan. Given the priorities of FI Global's transition plan, this would involve identifying if any of them are Climate Solutions, Managed Phaseout, and/or Aligning opportunities.

The next step is to assess the decarbonization potential of each opportunity and their respective EER. Understanding the expected decarbonization impact of each opportunity may be a useful consideration as part of the broader investment due diligence and decision-making process, including to support review by the FI Global investment committee.

Figure 28. Illustration of assessing EER for a medium segment battery electric vehicle (BEV) and internal combustion engine (ICE) of CarCo



Box 17. Considerations regarding Enabler EER allocation

If FI Global were to invest in the mining or recycling of critical battery minerals as Enablers within the BEV value chain, it would have to make additional assumptions as to how EER may be approximated for the position. In this instance, FI Global may opt to attribute 100% of the Solution's EV EER to the Enabler (critical minerals). Assuming all else is equal, in this case 15 t CO₂e of EER per BEV would be allocated to the financial investment in the Enabler. It is important for FI Global to measure and monitor the Solution's EER and associated Enabler's EER separately for transparency and to avoid double-counting within its own assessment.

Opportunity A: CarCo

Part I – Assessment and rationale based on Climate Solutions Attributes: Given that Climate Solutions and Managed Phaseout are priority areas within its Implementation Strategy and considering CarCo’s characteristics and absence of phaseout initiatives, FI Global determined it would be most appropriate to evaluate CarCo based on Climate Solutions attributes.

Climate Solutions	ATTRIBUTE DESCRIPTION	Y/N	CARCO ATTRIBUTES
A. Real-economy emissions reduction	i. Demonstrating direct or indirect net contribution to real-economy emissions reductions in a significant ¹⁸⁹ manner	✓	CarCo plays a direct role in decarbonizing the economy by substituting EVs for gasoline-powered cars, thereby contributing to a significant reduction in GHG emissions as a Solution. The company’s extensive regional presence, combined with its high market share, amplifies the significance and materiality of its decarbonization impact in the region.
	ii. Not leading to the extension (beyond net-zero pathways) of the lifetime emissions of assets identified for phaseout	✓	To the best of FI Global’s knowledge, CarCo’s operations are not materially linked to any assets that are earmarked or candidates for Managed Phaseout. However, FI Global has identified this as an area for further follow-up during the diligence process. It will also be important to monitor and reassess over time to ensure this condition continues to be satisfied for enhanced rigor and credibility (e.g., if, in the future, CarCo expands globally and manufactures outside of Europe where there are limited sources of renewable energy available, further assessment will be made to ensure this attribute continues to be addressed).
B. Expectations of net-zero alignment	Where the Climate Solution itself is associated with emissions, reasonable efforts are planned or being made to address emissions reductions in the near and medium-term, and can be expected to align to a science-based pathway over time in a net-zero economy. ¹⁹⁰	✓	CarCo’s commitment to sourcing renewable energy providers and reducing operational emissions over time is an important step, though FI Global has noted to follow up for more details and potentially a concrete action plan from CarCo’s management to ensure credibility and accountability to such claims. CarCo’s expressed intent demonstrates reasonable effort to align with net-zero objectives over the long-term.
Result: Transition Finance strategy → Climate Solutions → Solutions; Opportunity A falls within scope of Implementation Strategy			

¹⁸⁹ “Significant” should be considered within the appropriate context, such as the asset class or sector.

¹⁹⁰ When assessing for Attribute B, financial institutions are strongly encouraged to consider the Attributes under the [Attributes for Aligned and Aligning](#) section.

Part II – EER approach and calculation: As FI Global assessed CarCo to be a Solution with direct decarbonization impact, FI Global estimated the EER associated with CarCo’s expected decarbonization impact using the Avoided Emissions (AE) approach for Climate Solutions.

AE EER	CONTEXT	METRIC	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Identify the timeframe	The timeframe is highly dependent on the lifecycle of the Solution. FI Global assessed that the life cycle and timeframe was best captured by examining an internal combustion engine vehicle (ICE) versus a battery electric vehicle (BEV) over the same distance in kilometers driven. Leading industry research projected the timeframe (i.e., life cycle distance travelled) for both the ICE and BEVs to be 250,000 km. ¹⁹¹	Timeframe [km]	Timeframe = 250,000 km	N/A	N/A
Define the baseline scenario	FI Global projects that the baseline is represented by the sum of emissions from an ICE vehicle’s manufacturing plus the emissions from end use (i.e., total emissions over the specific distance driven, using 250,000 km as a proxy based on latest research available).	Manufacturing and end use [t CO ₂ e]	N/A	Baseline scenario LCA = manufacturing + end use	N/A
Assess baseline life cycle emissions	<p>FI Global took the baseline scenario equation from theory to practice by determining the actual baseline scenario’s life cycle emissions. This meant investigating the full value chain at play. FI Global noted that for both ICE and BEV manufacturing, emissions are primarily generated from the mining/extraction of ores and metals; transportation of key parts; and the vehicle’s assembly.</p> <p>Both ICE and BEV vehicle end-use emissions were calculated by determining the CO₂e per kilometer travelled and multiplying that by the distance travelled. The life cycle data available assumes that 250,000 km were driven.</p> <p>FI Global projected that manufacturing an ICE vehicle in the selected part of Europe emitted 5 t CO₂. Additionally, by calculating the CO₂e per kilometer traveled in an ICE vehicle to be 0.184 kg CO₂e, FI Global was able to estimate end use emissions to be 46 t CO₂e.</p>	Baseline scenario LCA [t CO ₂ e]	<p>Manufacturing = 5 t CO₂e</p> <p>End use = 46 t CO₂e</p>	Baseline scenario LCA = manufacturing + end use	51 t CO ₂ e = 5 t CO ₂ e + 46 t CO ₂ e

¹⁹¹ LCA based on mid-sized, or medium segment, ICE and BEVs.

AE EER	CONTEXT	METRIC	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Assess Solution life cycle emissions	To determine the Solution's life cycle emissions, FI Global assessed the full value chain of CarCo's BEV CO ₂ e in comparison to the full ICE value chain. This included the CO ₂ e from battery production in addition to the traditional manufacturing activities. When the Solution's LCA emissions were projected, its end use emissions were significantly lower than that of the ICE vehicle, making up just 14 t CO ₂ e after 250,000 km travelled. While manufacturing emissions for BEVs was also projected to be 5 t CO ₂ e, the EV battery manufacturing added an additional 2 t CO ₂ e to the solution's LCA total.	Climate Solution LCA & battery manufacturing [t CO ₂ e]	Manufacturing = 5 t CO ₂ e End use = 14 t CO ₂ e Battery manufacturing = 2 t CO ₂ e	Climate Solution LCA = manufacturing + end use + battery manufacturing ¹⁹²	21 t CO ₂ e = 5 t CO ₂ e + 14 t CO ₂ e + 2 t CO ₂ e
Assess potential EER	FI Global assessed EER per BEV by subtracting the Solution life cycle emissions from the baseline scenario life cycle emissions.	N/A	Baseline LCA CO ₂ e = 51 t CO ₂ e Climate Solution LCA CO ₂ e = 21 t CO ₂ e	EER per BEV = baseline CO ₂ e – Climate Solution CO ₂ e	30 t CO ₂ e = 51 t CO ₂ e – 21 t CO ₂ e
Allocate EER	Finally, allocated EER was derived by multiplying EER by a 50% equity stake in CarCo.	EER per BEV [t CO ₂ e] Equity stake [%]	EER per BEV = 30 t CO ₂ e Equity stake = 0.5	Allocated EER per BEV = EER x equity stake	15 t CO ₂ e = 30 t CO ₂ e x 0.5
<p>Result: The allocated EER per BEV is projected to be 15 t CO₂e per BEV. FI Global made a note to obtain the expected production curve of CarCo over FI Global's expected investment horizon and to derive total EER FI Global would apply the allocated EER per BEV to the expected production curve.</p> <p>Additional considerations: After completing its various analyses, FI Global has learned that CarCo is considering outsourcing its battery pack manufacturing to potentially further reduce the emissions profile of its BEVs. It turns out that at the time of assessment, the emissions intensity of manufacturing lithium batteries varies significantly across different regions. For example, the emissions intensity of battery manufacturing in France is 25% lower compared to China due to the significantly lower carbon intensity of the French electricity grid. Even within the US, manufacturers in California have fewer emissions than manufacturers in other states because California's share of renewables is 20% higher compared to the average US electricity grid. Based on this assessment, addressing BEV upstream activities such as battery pack sourcing could help CarCo significantly reduce BEV life-cycle emissions, which would help it meet its net-zero commitment. FI Global noted to CarCo that CarCo's consideration and assessment regarding outsourcing should be updated regularly to reflect changes in energy grid mix in different regions over time.</p>					

¹⁹² Steps have been simplified to highlight the key mechanics of the calculation. For example, here we assume the battery manufacturing is where the emissions are most different between EV and ICE. See [Box 17](#) for a discussion of Enabler EER attribution.

Opportunity B: CoalCo

Part I – Assessment and rationale based on Managed Phaseout Attributes: Given the nature of the potential opportunity and the intent to retire the asset early, FI Global determined it would be most appropriate to evaluate CoalCo based on Managed Phaseout Attributes.

Managed Phaseout	ATTRIBUTE DESCRIPTION	Y/N	COALCO ATTRIBUTES
A. Established net-zero commitment/ambition	Commitment to retire the asset early (i.e., before the expected or intended economic life). The commitment may be based on (not exhaustive): the planned remaining operating life; emissions avoided by shortening the operating life; relevant sector pathway, etc.	✓	CoalCo's owner-operator has committed to phasing out CoalCo by year 10, which is 15 years ahead of the end of its design life.
B. Established net-zero targets (set to pathway)	Emissions- or Transition-based: ¹⁹³ Targets set against the pathway or benchmark established as part of the phaseout commitment to track phaseout progress (e.g., early retirement year; interim targets along the phaseout GHG emissions profile; etc.)	✓	The sustainability-linked loan with known use of proceeds includes interim targets (50% reduction in coal-based energy within five years) and a final retirement target, with progress validated by an independent third-party auditor.
C. Net-zero transition plan (or phaseout plan)	Phaseout plan specific to the asset and/or captured as part of the financial institution's or owner/operator's phaseout strategy. ¹⁹⁴ The phaseout plan may include estimates of capex and opex requirements. Planned capex and opex may also be used as an indicator/KPI that tracks capital allocation as part of progress toward phaseout; consider specific capex needs, such as carbon efficiency; decommissioning; general capex to support early retirement; etc.	✓	CoalCo's owner-operator has established a phaseout plan with resource allocation and targets to support phaseout of CoalCo.
D. Additional KPIs	May include operational KPIs; decommissioning provisions; retraining of staff; plans in place for alternative (e.g., clean energy) supply; third-party validation/audit; phaseout financing structure; just transition considerations and KPIs, etc. The EER metrics introduced in Part II offer a complementary KPI to monitor in the context of alignment.	✓	For enhanced credibility, FI Global made a note to verify that CoalCo's phaseout plan incorporates KPIs related to socio-economic factors (e.g., loss of employment); execution (e.g., technical steps required for retirement); and the natural environment (e.g., land restoration).
E. Performance	Actual performance against established targets/KPIs for phaseout asset along the specific pathway or benchmark. ¹⁹⁵	✓	A third-party auditor will be engaged to monitor CoalCo's progress.
Result: Transition Finance strategy → Managed Phaseout; Opportunity B falls within scope of Implementation Strategy			

¹⁹³ Emissions-based metrics and targets focus on how the activity changes real-economy GHG emissions over time; Transition-based metrics and targets categorize the focus of the financial activity according to the relationship to net zero (e.g., Paris-aligned, production volume, etc.). For further discussion of these types of metrics targets, refer to the [GFANZ Financial Institution Net-zero Transition Plans – Supplemental Information](#), November 2022.

¹⁹⁴ Please refer to the GFANZ resources listed in the introduction to this section for further guidance on considerations for credible Managed Phaseout transactions and aspects to be included in a phaseout plan/NZTP.

¹⁹⁵ Note that this may be challenging if the asset is operated largely as normal until planned retirement.

Part II – EER approach and calculation: As FI Global assessed CoalCo to be a Managed Phaseout opportunity, FI Global estimated the EER associated with CoalCo's expected decarbonization impact using the Emissions Reduction Potential (ERP) approach for Managed Phaseout.

ERP-EER	CONTEXT	METRIC	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Establish emissions intensity	Emissions intensity would be the amount of CO ₂ e emitted from the generation of 1 MWh of electricity kg CO ₂ e/MWh). In the region where CoalCo is located, the emission intensity is 1000 kg CO ₂ e/MWh or 1 t CO ₂ e/MWh. This intensity metric is held constant for both the market and Managed Phaseout calculations FI Global conducts.	Emissions intensity [t CO ₂ e/MWh]	Emissions intensity = 1 t CO ₂ e/MWh	N/A	N/A
Establish total baseline emissions	Baseline emissions would be represented as the total emissions from the continued operation of CoalCo until the end of its design life. Besides the timeline, additional factors regarding the operation of CoalCo will need to be considered, including baseline intensity, generation capacity, and utilization rate. The energy market has been gradually shifting to cleaner sources of electricity generation. Therefore, FI Global considered a “market business-as-usual” scenario, which assumes that due to energy market trends (e.g., market adoption of renewables hence shrinking demand/supply for coal over time), the utilization rate of CoalCo's plan decreases by 10% every five years from 2025 to 2035, and further decreases 20% every five years from 2035-2049, eventually ceasing production in 2050. Generation capacity and emissions intensity is held constant.	Emissions intensity [t CO ₂ e/MWh] Generation capacity [MWh] Utilization rate [%]	Emissions intensity = 1 t CO ₂ e/MWh Generation capacity = 5,000,000 MWh Utilization rate (2028) = 54%	Baseline emissions (Year Y) = Emissions intensity x generation capacity x utilization rate (Year X) Total baseline emissions (2023 - 2050) = sum of each year's emissions intensity x generation capacity x utilization rate	Baseline emissions (2028) 2.7 Mt CO ₂ e = 1 t CO ₂ e/MWh x 5,000,000 MWh x 0.54 Total baseline emissions (2023 - 2050) 51.9 Mt CO ₂ e
Data weight adjustment	For the data weight adjustment, FI Global considers the likelihood of CoalCo's ability to achieve its phaseout plan. CoalCo's owner-operator has developed a phaseout plan for its coal assets and has allocated sufficient resources to execute the phaseout of CoalCo. For the purposes of EER approximation, FI Global is assuming CoalCo is currently on track to meet its early retirement timeline and no adjustment will be made on CoalCo's targets.	Data weight adjustment [%]	100%	N/A	N/A

ERP-EER	CONTEXT	METRIC	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Establish total projected Managed Phaseout emissions	As laid out in its phaseout plan, CoalCo will reach a 50% reduction by 2028, and complete phaseout in 2035. CoalCo will achieve this by reducing the utilization rate of the plant over time, i.e., down to 30% in 2028, and no utilization in 2035. Note that CoalCo expects the utilization rate to reduce in a non-linear way, as illustrated by the stepwise emissions reduction (Figure 29, asset forward-looking emissions profile). Note that FI Global assumes emissions intensity and generation capacity are constant during the phaseout timeline.	Total projected Managed Phaseout emissions [Mt CO ₂ e]	Emissions intensity = 1 t CO ₂ e/MWh Generation capacity = 5,000,000 MWh Utilization rate (2028) = 0.30	Baseline emissions (Year Y) = emissions Intensity x generation capacity x Managed Phaseout utilization rate (Year X) Total projected emissions (2023 - 2050) = sum of each year's emissions intensity x generation capacity x Managed Phaseout utilization rate	Managed Phaseout emissions (2028) 1.5 Mt CO ₂ e = 1 t CO ₂ e/MWh x 5,000,000 x 0.30 Total Managed Phaseout emissions (2023 - 2050) 21.3 Mt CO ₂ e
Assess potential EER	Potential EER is then estimated by subtracting the projected emissions total from the baseline emissions total.	EER [Mt CO ₂ e]	Total baseline emissions = 51.9 Mt CO ₂ e Total Managed Phaseout emissions = 21.3 Mt CO ₂ e	EER = total baseline emissions – total projected emissions	30.6 Mt CO ₂ e = 51.9 Mt CO ₂ e – 21.3 Mt CO ₂ e
Allocate EER	FI Global is assuming 100%.	Allocated EER [Mt CO ₂ e] Stake [%]	EER = 30.6 Mt CO ₂ e Stake = 100%	Allocated EER = EER x stake	30.6 Mt CO ₂ e = 30.6 Mt CO ₂ e x 1
Result: The 15-year early retirement of CoalCo's plant is projected to result in an EER of 30.6 million tonnes of CO ₂ e.					

Figure 29. Illustration of CoalCo's projected emissions

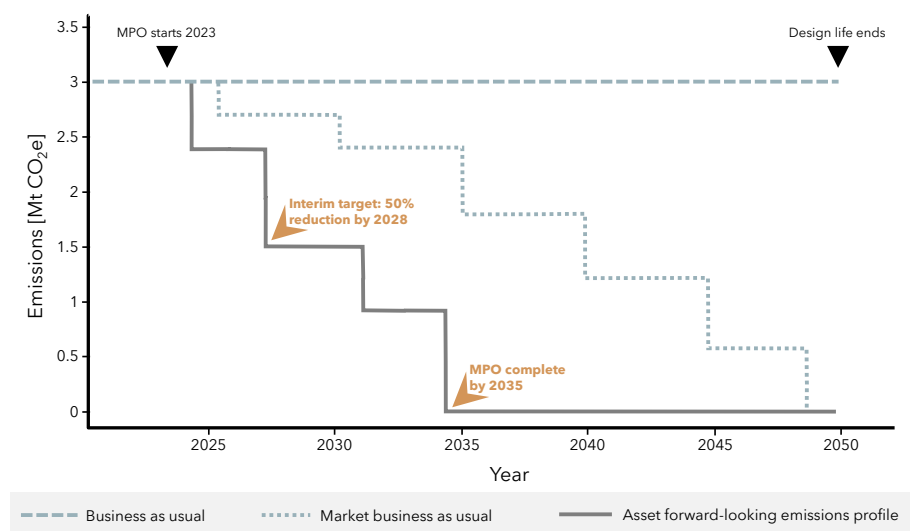


Table 11. GHG emissions and final EER outcome of CoalCo's Managed Phaseout plan over time

Timelines	MANAGED PHASEOUT			"MARKET BUSINESS AS USUAL"		
	Plant utilization rate [%]	Generation [MWh]	Annual emissions [Mt CO ₂ e]	Plant utilization rate [%]	Generation [MWh]	Annual emissions [Mt CO ₂ e]
Start year (2023)	60	3,000,000	3	60	3,000,000	3
Interim year (2028)	30	1,500,000	1.5	54	2,700,000	2.7
Managed Phaseout end year (2035)	0	0	0	48	2,400,000	2.4
Design life end-year (2050) retirement	0	0	0	0	0	0
Cumulative emissions (2050)			21.3			51.9
EER						30.6 Mt CO ₂ e

Portfolio company SteelCo (existing)

Part I – Assessment and rationale based on Aligning Attributes: As FI Global is looking to determine if SteelCo falls within scope of its Engagement Strategy for Aligning entities, FI Global performed the assessment to check if SteelCo meets the Attributes for Aligning entities.

Aligning	ATTRIBUTE DESCRIPTION	Y/N	STEELCO ATTRIBUTES
A. Established net-zero commitment/ambition	Commitment/ambition to reach net zero, specifying science-based pathways/benchmarks. ¹⁹⁶	✓	SteelCo management made a public net-zero commitment.
B. Established net-zero targets (set to pathway)	Emissions-based KPIs: Scope 1 and 2; Scope 3 if material; at a minimum, short- to medium-term interim targets established between time of commitment and net zero. ¹⁹⁷	✓	SteelCo has established interim targets as part of its commitment to transition to net zero. FI Global made a note to check the associated pathway as part of its follow-up with SteelCo management.
C. Net-zero transition plan	Developing; consider including planned low-carbon capex and opex (where available).	✓	SteelCo management is working on a net-zero transition plan to be released by the end of the year. FI Global performed a separate assessment of SteelCo's business and its governance and has concluded that the key elements for a credible transition plan are there.

¹⁹⁶ Based on science-based net zero pathways, including those that may be region-specific.

¹⁹⁷ The GFANZ Secretariat recognizes that many entities may be in the early stages of implementing their net-zero commitment, and that there is a gray area where entities may be committed and taking significant steps in establishing targets. Financial institutions are encouraged to capture these exposures separately under "In development" and incorporate actions to support such entities' progression on the alignment scale as part of the financial institution's net-zero transition plan. Please refer to [In development](#) for details.

Aligning	ATTRIBUTE DESCRIPTION	Y/N	STEELCO ATTRIBUTES
D. Additional KPIs	Where applicable, consider tracking low-carbon revenues; planned low-carbon capex and opex; other financial metrics as proxy for alignment (where available); benchmarking/accreditation scores by third-party platforms; just transition considerations; KPIs, ¹⁹⁸ etc. The EER metrics Introduced In Part II offer a complementary KPI to monitor in the context of alignment.	✓	For enhanced credibility, as part of its follow-up with SteelCo management FI Global made a note to check whether SteelCo would obtain third-party verification of its targets.
E. Performance	Demonstrating increasingly meaningful progress toward established targets/KPIs and convergence toward pathways (e.g., expected convergence to interim targets)	✓	Based on FI Global's assessment (see Attribute C – NZTP above), FI Global concluded that SteelCo has the right measures in place and can be reasonably expected to progress toward its interim targets. FI Global made a note to reassess once SteelCo publishes its net-zero transition plan.
<p>Result: Transition Finance strategy → Aligning; SteelCo falls within scope of FI Global's Engagement Strategy.</p> <p>Additional considerations: FI Global noted there are a few outstanding items for follow-up that would serve as a good starting point for engagement efforts with SteelCo management. Given its limited influence on SteelCo, for enhanced transparency, FI Global decided to track SteelCo as part of its Aligning exposure within the Engagement Strategy of its net-zero transition plan but separate from other Aligning exposures where it has significant influence through control/majority interest.</p>			

Opportunity C: portfolio company SteelCo

Part I – Assessment and rationale based on the Climate Solutions Attributes: The ambiguity surrounding this opportunity is twofold. Firstly, there is the question of whether innovative, yet untested technology may be considered as a Climate Solution. Secondly, the lack of specificity and guardrails on how SteelCo will utilize the funds adds another layer of complexity. To determine if this opportunity may fall under the scope of FI Global's Implementation Strategy, FI Global decided to first assess these technologies and their *expected* decarbonization impact against the Climate Solutions Attributes.

Climate Solutions	ATTRIBUTE DESCRIPTION	Y/N	STEELCO CCUS
A. Real-economy emissions reduction	i. Demonstrating direct or indirect net contribution to real-economy emissions reductions in a significant ¹⁹⁹ manner.	✓	The development of CCUS technology is expected to significantly decarbonize SteelCo's operations. There are also very few alternatives currently available to decarbonize the steel industry in a material way. FI Global made a note to follow-up with SteelCo management on whether other existing and available technology (e.g., efficiency improvements, steel recycling, etc.) is being deployed in parallel.
	ii. Not leading to the extension (beyond net-zero pathways) of the lifetime emissions of assets identified for phaseout.	✓	To the best of FI Global's knowledge, the new development and projects will not be dependent on, or associated with, an asset identified for phaseout.

¹⁹⁸ For example, investments in human capital development in skills/training; financial considerations regarding affordability of products and services; etc.

¹⁹⁹ "Significant" should be considered within the appropriate context, such as the asset class or sector.

Climate Solutions	ATTRIBUTE DESCRIPTION	Y/N	STEELCo CCUS
B. Expectations of net-zero alignment	Where the Climate Solution itself is associated with emissions, reasonable efforts are planned or being made to address emissions reductions in the near and medium-term, and can be expected to align to a science-based pathway over time in a net-zero economy. ²⁰⁰	✓	Given the nascency and greenfield nature of this opportunity, FI Global has determined that this attribute will not be part of its assessment.
<p>Result: Transition Finance strategy → Climate Solutions → Enabler; Opportunity C falls within scope of FI Global's Implementation Strategy.</p> <p>Additional considerations: Since SteelCo has been assessed to be an Aligning entity, the opportunity to provide general purpose debt financing may also be considered within the context of SteelCo's net-zero transition plan. Providing this financing would support SteelCo's current efforts to reduce its operational emissions and therefore may be considered as part of the exposure for FI Global under the Aligning strategy (instead of being considered as an additional and separate new exposure to Climate Solutions – Enabler). FI Global has made a decision to consider Opportunity C as a decarbonization initiative within SteelCo's net-zero transition plan that is in development (i.e., part of SteelCo's existing decarbonization pathway).</p> <p>Given the general-purpose structure of financing, FI Global noted that if it were to provide this debt financing, it would consider the balance under its SteelCo exposure but it would monitor it separately from the rest of its equity-based Aligning exposure.</p>			

Part II – EER approach and calculation: To estimate the potential EER associated with SteelCo's decarbonization impact, FI Global calculated SteelCo's EER with the ERP method for Aligning entities. As noted above, FI Global will assume Opportunity C would fall within SteelCo's existing EER as a decarbonization lever, and therefore will not be conducting a separate EER calculation for the general-purpose financing opportunity.

ERP-EER	CONTEXT	METRICS	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Identify baseline intensity	<p>Baseline intensity is the amount of CO₂e emitted from the production of a single ton of steel (mtCO₂e/t CS).²⁰¹ Baseline intensity is calculated for each year from the base year through 2035. The baseline intensity is projected using a combination of best-in-class industry scenarios and the current physical intensities of SteelCo's operations. The fundamental assumption driving the baseline intensity calculation is that business operations for SteelCo are not affected by CO₂e reduction targets. Thus, the baseline intensity for the production of a single tonne of steel is only affected by incremental technology improvements and other external factors like grid efficiencies.</p> <p>In SteelCo's base year of 2020, the intensity of emissions per tonne of steel produced was 2.0 t CO₂e/t CS. Industry experts and leading scenario models indicated to FI Global that by 2030 there is to be a 10% decrease in emissions intensity for steel production caused</p>	Intensity [t CO ₂ e/t CS]	<p>Baseline intensity change (2030) = 10%</p> <p>Baseline intensity change (2035) = 13%</p>	Baseline intensity (per year) = base year intensity x % reduction	<p>Baseline intensity (2030) 1.80 t CO₂e = 2.0 t CO₂e x 0.9</p> <p>Baseline intensity (2035) 1.75 t CO₂e = 2.0 t CO₂e x 0.87</p>

²⁰⁰ When assessing for Attribute B, financial institutions are strongly encouraged to consider the Attributes under [Attributes for Aligned and Aligning](#).

²⁰¹ In this context, CS means Crude Steel.

ERP-EER	CONTEXT	METRICS	KEY VARIABLES	EQUATION(S)	CALCULATIONS
	by incremental improvements in technology and grid efficiencies. Thus, by 2030, baseline intensity is projected to be 1.8 t CO ₂ e/t CS. FI Global notes that between 2030 and 2035 the pace of these expected emissions reductions begins to slow, achieving only a 13% CO ₂ e decrease by 2035 relative to 2020 rather than the initially expected 15%. After further diligence it becomes clear to FI Global that this discrepancy is likely the result of having locked in high emitting technologies in the steel sector in a baseline scenario.				
Establish baseline emissions	Leveraging historical company data, industry research, and other relevant sources, FI Global projected SteelCo's expected production levels through 2035. Baseline emissions are then calculated by multiplying the baseline intensity by the total production of steel for a given year. In 2023 SteelCo produced 4 Mt of steel and is projected to increase production 2% per year through 2035. Knowing both the expected production and having calculated the baseline intensity allows FI Global to determine baseline emissions per year to 2035.	Production [t CS] Intensity [t CO ₂ e/t CS] Baseline emissions [t CO ₂ e]	Production (2030) = 4.59 Mt CS Baseline intensity (2030) = 1.8 mtCO ₂ e/t CS	Baseline emissions (2030) = baseline intensity (2030) x t CS produced (2030) Total baseline emissions (2020 - 2050) = sum of each year's (baseline intensity x t CS produced)	Baseline emissions (2030) = 8.27 Mt CO ₂ e = 4.59 Mt CS x 1.80 t CO ₂ e/t CS Total baseline emissions (2020 - 2050) = 129.96 Mt CO ₂ e
Data weighting adjustment	SteelCo has committed to net zero by 2050 and established interim targets of 20% and 50% CO ₂ e intensity reductions by 2030 and 2035, as well as placed some executive oversight across this process. However, their targets are not yet validated by a third party and its transition plan is still in development. Accordingly, per FI Global's calculation, SteelCo received a score of 3 ²⁰² and its targets were adjusted by half its 2030 and 2035 interim intensity targets to 10% and 25% respectively.	Data weighting adjustment [%] Projected intensity reduction [% of base year intensity]	Score of 3 = 0.5 Interim target 2030 = 20% Interim target 2035 = 50%	Projected intensity reduction = interim target x score	Projected intensity reduction (2030) = 10% = 20% x 0.5 Projected intensity reduction (2035) = 25% = 50% x 0.5
Establish projected intensity	The projected intensity is the amount of CO ₂ e from the production of a single tonne of crude steel when accounting for net zero activities. With the adjustment of 50% factored in, SteelCo's projected CO ₂ e intensity reductions are only 10% and 25% relative to the base year of 2020. However, because of the expected impact of CCUS on the steel production process beyond 2030, FI Global believes SteelCo will begin to deliver a below baseline intensity target starting in 2031. ²⁰³	Intensity [t CO ₂ e/t CS] Projected intensity reduction [% of base year intensity]	Baseline intensity = 2.0 t CO ₂ e/t CS Projected intensity reduction (2031) = 0.89	Projected intensity (2031) = base year intensity x projected intensity reduction (2031)	1.74 t CO ₂ e/t CS = 2.0 t CO ₂ e/t CS x 0.89

²⁰² See Part II for more details on data weighting considerations.

²⁰³ See [Table 12](#) for a comparison across baseline, interim, and projected intensities.

ERP-EER	CONTEXT	METRICS	KEY VARIABLES	EQUATION(S)	CALCULATIONS
Establish projected emissions	To estimate projected emissions per year, FI Global took the projected intensity and multiplied it by the expected production of steel.	Intensity [t CO ₂ e/t CS] Production [t CS]	Projected Intensity (2031) = 1.74 t CO ₂ e/t CS Production (2031) = 4.69 Mt CS	Projected emissions (2031) = projected intensity (2031) x t CS produced (2031) Total projected emissions (2020 - 2050) = sum of each year's projected intensity x t CS produced	Projected emissions (2031) 8.15 Mt CO ₂ e = 1.74 t CO ₂ e/t CS x 4.69 Mt CS Total projected emissions (2020 - 2050) 126.40 Mt CO ₂ e
Calculate absolute EER	To calculate absolute EER, FI Global took the total baseline emissions from 2020 - 2050 and subtracted total projected emissions from the same timeframe.	Total emissions [t CO ₂ e]	Total baseline emissions (2020 - 2050) 129.96 Mt CO ₂ e Total projected emissions (2020 - 2050) 126.40 Mt CO ₂ e	Absolute EER = total baseline emissions – total projected emissions	3.56 Mt CO ₂ e = 129.96 Mt CO ₂ e – 126.40 Mt CO ₂ e
Calculate allocated EER	To calculate allocated EER, absolute EER was multiplied by FI Global's equity stake of 10%.	Allocated EER [t CO ₂ e]	Absolute EER = 3.56 Mt CO ₂ e Equity stake = 0.1	Allocated EER = absolute EER x equity stake	0.356 Mt CO ₂ e = 3.56 Mt CO ₂ e x 0.1
<p>Result: FI Global believes SteelCo could deliver over 3.56 Mt CO₂e reductions from 2031 on. Thus, its corresponding allocated EER is believed to be approximately 360,000 t CO₂e.</p> <p>Additional considerations: FI Global's potential EER analysis for SteelCo highlighted a number of opportunities for engagement. From the base year through 2030, FI Global does not project SteelCo to deliver any additional emissions abatements. While FI Global has now learned that the lion's share of the steel industry's decarbonization efforts for net zero will demand the scaling of technologies like CCUS, FI Global believes SteelCo is leaving millions of tonnes of emissions reduction potential on the table by not focusing enough on the already available solutions.</p> <p>During its diligence, FI Global gained an understanding of how more immediate emissions reductions are possible before 2030 through solutions such as the improvement of steel recycling and the switch to best available technologies that rely on cleaner sources of energy. As a result, FI Global plans to review SteelCo's transition plan in detail to see if the company is aiming to use these and other available solutions. With greater visibility and engagement, FI Global can update its projected intensity. To avoid locking in high-emitting processes and to support the much-needed addition of CCUS to the steel industry, FI Global is eager to engage and provide support to SteelCo on its decarbonization initiatives.</p>					

Table 12. Comparison across baseline, interim, and projected intensities of SteelCo²⁰⁴

	BASE YEAR 2020	2030		2031		2035	
	INTENSITY [T CO ₂ E/T CS]	INTENSITY [T CO ₂ E/T CS]	CO ₂ E % REDUCTION	TOTAL INTENSITY [T CO ₂ E/T CS]	CO ₂ E % REDUCTION	TOTAL INTENSITY [T CO ₂ E/T CS]	CO ₂ E % REDUCTION
Baseline intensity	2.00	1.80	10%	1.78	11%	1.75	13%
Interim target	2.00	1.60	20%	1.52	24%	1.00	50%
Projected intensity	2.00	1.80	10%	1.74	13%	1.50	25%

In summary

Based on the preliminary assessment performed, FI Global was able to conclude:

I. Opportunities A to C all fall within scope of its Implementation Strategy as Climate Solutions or Managed Phaseout, and may be considered for Transition Finance

FI Global applied an additional lens to capture expected emissions reduction potential via EER and was able to summarize the results as follows:

	OPPORTUNITY [\$]	ALLOCATED EER	DEGREE OF ASSOCIATION	LEVEL OF UNCERTAINTY	TIME HORIZON
Opportunity A Solutions	US\$100M	15 t CO ₂ e per BEV	High/direct – control interest	Low	Short
Opportunity B Managed Phaseout	US\$100M	30.6 Mt CO ₂ e	High/use of proceeds	Medium	Medium
Portfolio company + Opportunity C Aligning	US\$100M	0.36 Mt CO ₂ e for 2020 – 2035	Low/minority stake x general purpose	High	Medium – Long

Given the above, FI Global can then consider the following:

- Degree of association: Does the financing structure provide FI Global with direct exposure to decarbonization initiatives and impact?
- Level of uncertainty: Does the opportunity/company have a proven track record for emissions reduction impact? Is the technology proven?
- Time horizon: Upon financing/investment, will FI Global have exposure to emissions reduction impact in the short-term or is it going to take time?

²⁰⁴ Orange indicates consistency with baseline numbers; green indicates net-zero progress.

II. The portfolio company falls within the scope of its Engagement Strategy and therefore FI Global will determine how best to engage and support SteelCo in its progression to net-zero alignment within the limits of its minority stake

Though FI Global has limited influence through its minority 10% stake in SteelCo, FI Global is committed to engaging and supporting SteelCo in developing its net-zero transition plan as part of the scope of FI Global's Engagement Strategy. SteelCo exhibits potential to reach Aligned status, contingent on: i) the establishment and implementation of a net-zero transition plan, and ii) a minimum of two years of alignment to pathway.

FI Global understands that the progression may take some time, as SteelCo's net-zero alignment appears to be contingent upon the new technologies' feasibility outlined in Opportunity C. By being able to recognize and capture its share in SteelCo as part of Aligning within its net-zero transition plan, FI Global has a basis to support efforts (including an investment thesis for Opportunity C) and to measure/monitor progress of its Engagement Strategy with SteelCo.

Areas for further work



Overview

The concepts developed in this Note are the result of perspectives received from a myriad of sources, including over 300 direct consultation responses. The input came from, among other places, sector-specific alliance members, Advisory Panel participants, outreach efforts and open consultation, dozens of industry interviews and focus groups, and multiple webinars. All these sources provided valuable insight into the challenges that different organizations – across financial sector industries, geographies, sector exposures and business models – may encounter in considering applying the concepts developed in this Note.

The GFANZ Secretariat considered these challenges in the development of this Note and sought to balance the insights gathered – and sometimes conflicting viewpoints – with the need for a more consistent and decision-useful approach for financial practitioners to scale Transition Finance and estimate the potential decarbonization contribution.

This section outlines the key issues considered by the GFANZ Secretariat and its working groups; significant public feedback received related to those issues; and areas where further work is expected. [Figure 30](#) summarizes areas the GFANZ Secretariat identified, through its own analysis as well as through public feedback, as warranting further research, analysis, and development of methodologies and standards.

Figure 30. Key areas for further work

Key areas of further work	
Relationship to other frameworks and methodologies	Encourage stakeholders to support further development of the concepts and approaches identified in this Note
Data availability, consistency, and quality	Encourage further research and analysis by sector and industry experts to develop more consistent approaches for the real economy and financial sector
Methodology issues and concepts	Expect ongoing refinement and development of concepts presented in this Note

Relationship to other frameworks and methodologies

Through the GFANZ Secretariat's outreach efforts, some organizations expressed concern that multiple frameworks and mandatory requirements increase the administrative burden to implement these concepts. Specifically, the additional time, cost, and effort required to analyze and calculate new climate-related information could penalize those with less capacity to respond. The GFANZ Secretariat considered existing voluntary and mandatory Transition Finance frameworks in developing this Note and provides information in [Appendix C](#) on the relevance of select existing frameworks with the GFANZ four key transition financing strategies.

The GFANZ Secretariat expects market participants utilizing other approaches will use existing processes and content when developing and implementing these concepts. This Note provides a basis for further work and identifies a common set of principles and guardrails to support and complement current frameworks to be consistent over time. Preparers, users, and other stakeholders share a common interest in encouraging consistency as it helps scale Transition Finance and drive economy-wide decarbonization, reduces fragmented approaches, and provides greater comparability for stakeholders. The GFANZ Secretariat also encourages private sector standard setting bodies to support further development of the concepts and approaches identified in this Note.

The GFANZ Secretariat anticipates work to clarify relationships and interoperability with other frameworks to continue as appropriate in 2024.

Data availability, consistency, and quality

As part of the consultation and engagement efforts conducted over the last six months, numerous organizations provided feedback on data limitations. Common themes and gaps include:

- Concerns about the availability of data, including with respect to real-economy companies, regional and sector benchmark scenarios, life-cycle analysis
- Concerns about the quality, consistency, and comparability of data needed to conduct analyses
- Desire to simplify data input needs and the desire for additional guidance on metrics, including how to calculate key metrics

Organizations also raised concerns about the lack of standardized data and metrics, as this complicates practitioners' ability to develop decision-useful metrics and users' ability to compare metrics across organizations. The GFANZ Secretariat recognizes these concerns as well as broader challenges related to data availability and quality, as described below:

- The gaps in emissions measurement methodologies, including Scope 3 emissions, make reliable and accurate estimates difficult.
- The lack of robust and cost-effective tools to evaluate applicability at the asset and project level makes aggregation across an organization's activities or investment portfolios problematic and costly.
- The need to consider the variability within different sectors and regions further complicates the process (and magnifies the cost) of assessing potential application and impact.

In response, the GFANZ Secretariat encourages further research and analysis by sector and industry experts to develop more consistent approaches for the real economy and financial sector, including granular approaches to defining of transition-related assets and increasing organizations' understanding of key inputs to better define Transition Finance and estimate potential decarbonization contributions.

As it relates to the broader challenges with data quality and availability, the GFANZ Secretariat encourages preparers to include in their work a description of gaps, limitations, and assumptions made as part of their assessment and application of the concepts introduced in this Note.

Methodology issues and concepts

Financial sector market participants have expressed several concerns relating to the methodology and use of the proposed Expected Emissions Reduction (EER) concept, and continue to emphasize that further work is required to refine the Attributes outlined in this Note.

EER methodology and application

As currently proposed, the EER concept may be highly complex to implement. In addition to data limitations, implementing Life Cycle Analysis, engaging non-listed SMEs, and identifying Emerging Markets assets pose further challenges.

The concept of EER, while useful to indicate potential decarbonization contribution, ultimately is derived from two generally understood concepts based on Avoided Emissions and Emission Reduction Potential. Using one umbrella term risks conflation of these two distinct approaches and potential aggregation of these four separate, but not mutually exclusive, calculations risks inflating the EER.

Further work is needed to ensure baseline scenarios: are credible; do not overestimate the benefits offered by any specific entity or asset; and are potentially revisited to ensure the estimated impacts are realized. In addition, further work is needed to refine the approach to allocate EER to the financial institution to support internal assessment and other use case applications. More work on the EER concept and outputs is needed to encourage market acceptance and adoption. Third-party verification of the approaches, for example with regard to choosing a baseline or weighting the targets for Aligned and Aligning entities, would support wider acceptance and adoption.

Should there be progress in the development of EER, measures similar to and/or based on the EER concept may be combined with other generally accepted KPIs and tools that are already used by financial institutions today to help capture the capital flow and support Transition Finance activities. This may help inform capital allocation decisions to each of the four key transition financing strategies by evaluating EER per capital allocated (e.g., “emissions return”) alongside other KPIs, such as planned capex, production plans, green revenues of entities, etc.

In considering the use of EER, adjustments to the EER may be necessary to reflect factors such as risk, time horizon, and time value of carbon. Further work is required to refine the EER concept and how adjustments may be incorporated so the resulting metrics can be used alongside other financial KPIs. For example, the EER may be adjusted to reflect:

- The level of risk associated with technological maturity of a Solution – emissions reduction potential of unproven technologies will then be associated with lower adjusted EER vs. more mature options
- The investment horizon of a position – the EER may be prorated to reflect the financial institution’s expected holding period
- The time value of carbon, where near-term EER may be assigned a higher weight vs. EER that is further out in the future

To further support financial institutions in using EER for assessment, work is needed on allocation methodologies based on financial metrics.

Regional and sectoral considerations

Availability and access to granular and credible regional and/or sector-specific pathways may be limited in certain regions and sectors at this time. Different regions have distinct economic dynamics, regulatory landscapes, and other factors that may influence alignment or phaseout thresholds and timeframes due to their unique social, economic, technological, and environmental contexts. These regional variations and sector-specific nuances necessitate a tailored approach to pathway assessment and application. This Note outlines Attributes and their application from a principles-based approach, but implementation should take into account region and sector-specific pathways and considerations where available. The GFANZ Secretariat anticipates ongoing development of the concepts outlined in this Note, including considerations such as the appropriate timing for establishing net-zero transition plans, which may involve market stakeholders that have the expertise to provide sector- or region-specific granularity.

Climate Solutions

The treatment of Nature-based solutions is rapidly developing but is still new and evolving. While the GFANZ Secretariat recognizes that Nature-based solutions are essential to achieving net-zero goals, work to define the role of Nature-based solutions in net-zero transition will be addressed as part of GFANZ programmatic initiatives in 2024.

With regards to Enablers, demonstrating the link/degree of association between the enabling product or service and the Solution may require additional analysis. Given the diversity of value chains and Solutions that may be considered, such analyses may need to be performed at the sector and/or region-specific level to provide decision-useful input on the parts of a value chain that may be considered as Enablers. This, in turn, impacts the portion of EER that may be allocated to Enablers. Additional work is required to develop or refine methodologies to identify the portion of an Enabler's business that directly contributes to a Solution. Further work on how to derive and allocate the potential decarbonization contribution of Enablers is needed to develop credible approaches that encourage financing to this critical area.

Aligned and Aligning

Due to the nascency of these concepts in the market, the proposed two-year performance timeframe under the Aligned strategy will necessitate testing with actual data to determine its feasibility and effectiveness in capturing entities that are aligned with pathways. The threshold may also differ depending on the sector and/or region being considered.

In addition, the degree and period of divergence from a pathway and how these forward-looking factors should be accounted for in determining whether an entity is Aligning or not requires further testing and development. In this context, best practice approaches may be required to monitor the progress of Aligning entities over time and to establish how long an Aligning entity may be classified as such without progressing to the Aligned stage. Data availability and restrictive sample sizes may pose challenges to empirical testing of these concepts.

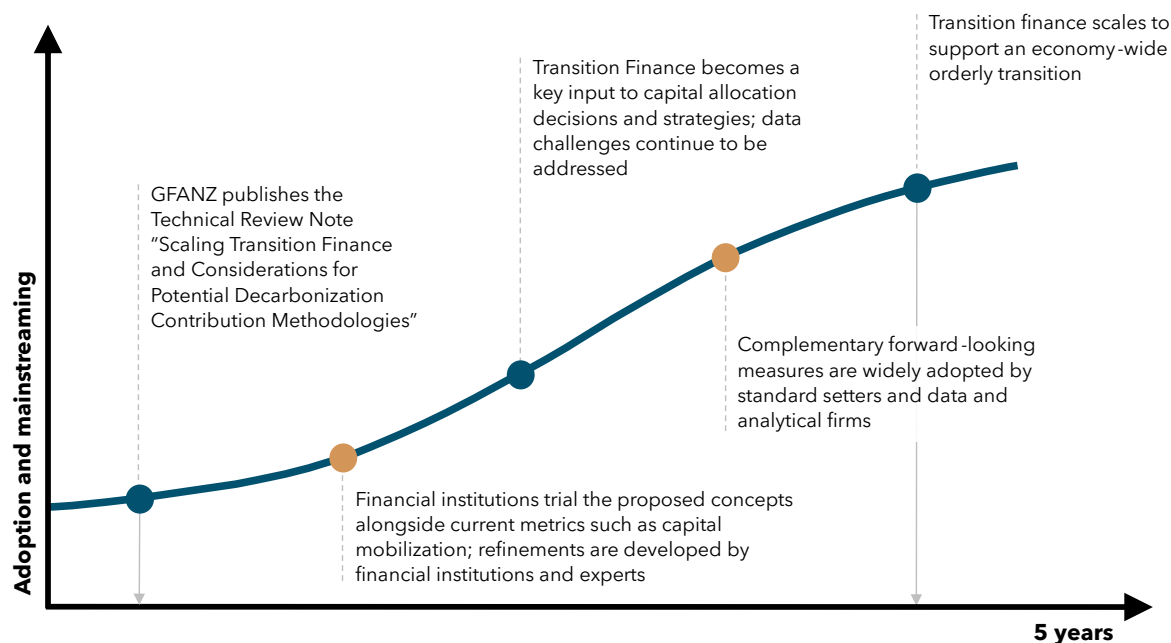
Data providers will be important contributors to drive this development forward.

An aerial photograph of a modern, multi-story building with a complex, angular design. The building features extensive glass facades and flat roofs that are integrated with green spaces, including trees and shrubs. The structure is composed of several interconnected volumes, creating a series of internal courtyards and terraces. The overall aesthetic is one of sustainable architecture, blending urban development with nature.

The road ahead

As the world grapples with the urgency of transitioning to net-zero, a significant funding gap remains a major barrier to achieving this ambition. Consistency in the definitions for Transition Finance and well-developed mechanisms that capture Transition Finance activity and potential decarbonization contribution may support closing of this funding gap.

Figure 31. Illustration of adoption and mainstreaming of the proposed approaches



Polymakers and governments worldwide can help to bring clarity to the landscape of Transition Finance. Linkage of necessary, region-specific Transition Finance activities and each country's net-zero goals and pathways (e.g., NDCs) is important to provide a roadmap for achieving national emissions reduction targets. Development of supporting taxonomies, regulations, standards, and enabling policies – including those for a just transition – that facilitate such Transition Finance activities is also of importance to ensure broader alignment of national and global climate goals.

The development and operationalization of net-zero transition plans by both financial institutions and real-economy companies continues to be an important lever to enable increased financial flows toward the four key transition financing strategies. Net-zero transition plans provide the clarity and information required to identify the areas where Transition Finance and support is most critically needed, while also serving as a roadmap to support execution and ensure accountability of the actions required to drive net-zero transition.

Further development of forward-looking decarbonization contribution approaches and metrics can provide mechanisms to recognize potential emissions reduction opportunities thus bridging the gap between portfolio emission targets and the need to finance decarbonization including in high-emitting areas. The nascency of the concepts presented in this Note requires further refinement through testing and adoption by real-economy companies, financial institutions, and technical experts. As the concepts mature and best practices emerge, standard setters can offer clarity by providing guidance related to the inclusion of complementary forward-looking measures into transition plans.

All stakeholders play a critical role in accelerating financing and support for the four key transition financing strategies, thus contributing to the achievement of net zero and limiting global warming to 1.5 degrees C.

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APPENDIX A

Glossary and abbreviations

1.5 degrees C-aligned	A pathway of emissions of greenhouse gases and other climate forcers that provides an approximately one-in-two to two-in-three chance, given current knowledge of the climate response, of global warming either remaining below 1.5 degrees C or returning to 1.5 degrees C by around 2100 following an overshoot. ²⁰⁵ Pathways giving at least 50% probability based on current knowledge of limiting global warming to below 1.5 degrees C are classified as “no overshoot,” while those limiting warming to below 1.6 degrees C and returning to 1.5 degrees C by 2100 are classified as 1.5 degrees C “low overshoot.” ²⁰⁶
Absolute emissions	Greenhouse gas emissions expressed in tonnes of CO ₂ e. ²⁰⁷
Avoided emission (AE)	Avoided emission approach in this Note is a methodology to quantify EERs for Climate Solutions.
ACT	Assessing low-Carbon Transition initiative
Aligned entities	Entities that are already aligned to a 1.5 degrees C pathway.
Aligning entities	Entities committed to transitioning in line with 1.5 degrees C-aligned pathways.
ASEAN	Association of Southeast Asian Nations
ATF	Asia Transition Finance Study Group
Baseline	The counterfactual of what would have happened in the absence of any interventions, used as a reference point against which to measure impact.
BAU	Business As Usual
BEV	Battery Electric Vehicle
BNEF	Bloomberg New Energy Finance
CA100+	Climate Action 100+
CAPEX	Capital Expenditure
Carbon Budget	The cumulative amount of carbon dioxide (CO ₂) emissions permitted over a period of time to keep within a certain temperature threshold. ²⁰⁸
CBI	Climate Bonds Initiative
CCUS	Carbon Capture, Utilization, and Storage
CDP	Formerly known as Climate Disclosure Project
CFPP	Coal-Fired Power Plant

²⁰⁵ IPCC. [Annex 1: Glossary](#), 2018.

²⁰⁶ IPCC. [Summary for Policymakers](#), 2018, p. 24.

²⁰⁷ Adapted from PCAF. [Financed Emissions The Global GHG Accounting & Reporting Standard Part A](#), December 2022.

²⁰⁸ Carbon Tracker. [Carbon Budgets Explained](#), February 2018.

Climate Solutions Technologies, services, tools, or social and behavioral changes that directly contribute to the elimination, removal, or reduction of real-economy GHG emissions or that directly support the expansion of these solutions. These solutions include scaling up zero-carbon alternatives to high-emitting activities – a prerequisite to phasing out high-emitting assets – as well as nature-based solutions and carbon removal technologies.

In this Note, “Climate Solutions” is used to refer to solutions that support mitigation of climate change and emissions reduction. GFANZ acknowledges that a broader use of the term may include solutions that are aimed at developing adaptation.

COP28	28 th session of the Conference of Parties to the UNFCCC (United Nations Framework Convention on Climate Change)
CS or t CS	CS is Crude Steel; t CS is tonnes of Crude Steel
CO ₂ e or t CO ₂ e	CO ₂ e is carbon dioxide equivalent; t CO ₂ e is tonnes of carbon dioxide equivalent
Cumulative emissions	Total emissions of an asset or entity summed over a set period of time.
Design life	The ceiling lifespan of an asset at the start of commercial operation.
ECE	Expected cumulative emissions; represents the cumulative total expected remaining emissions of an entity on its journey to net zero.
Economic retirement	The point at which it would be more economic to retire an asset than to continue its operation.
EER	Expected Emissions Reduction; a forward-looking metric that estimates potential emissions reduction of exposures.
ERP	Emissions Reduction Potential methodology
Emissions intensity	Emissions per a specific activity, or an industrial production process, for example: t CO ₂ e/MWh; t CO ₂ e/tonne product produced; t CO ₂ e/\$M company revenue; t CO ₂ e/\$M invested ²⁰⁹
Emission factors	A representative value that relates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. ²¹⁰
Emissions intensity metric	Emissions per a specific unit, for example: t CO ₂ e/\$M invested; t CO ₂ e/MWh; t CO ₂ e/tonne product produced; t CO ₂ e/\$M company revenue ²¹¹
Emissions profile	In the context of this Note, also referred to as “forecast net-zero emissions profile” to indicate the forward-looking plan of an entity to reduce its emissions toward a net-zero pathway.
ETC	Energy Transitions Commission
EV	Electric Vehicle

²⁰⁹ Adapted from PCAF, Financed Emissions [The Global GHG Accounting & Reporting Standard Part A](#), December 2022.

²¹⁰ U.S. Environmental Protection Agency. [Basic Information of Air Emissions Factors and Quantification](#), December 2022.

²¹¹ Adapted from PCAF, Financed Emissions [The Global GHG Accounting & Reporting Standard Part A](#), December 2022.

Financed emissions	This broadly corresponds to the definition Scope 3 Category 15 emissions under the GHG Protocol, but in the pan-financial sector context also includes insurance-associated emissions. GFANZ encourages the use of the PCAF Standards, built on and accepted by the GHG Inventory Protocol, and acknowledges PCAF's ongoing work to further develop and refine methodological guidance to measure and disclose GHG emissions associated with different asset classes and categories of financial activity. GFANZ encourages financial institutions to use these standards, as appropriate, as they are released.
Functional unit	A functional unit describes a quantity of a product or product system on the basis of the performance it delivers in its end-use application. ²¹²
GFANZ	Glasgow Financial Alliance for Net Zero
GFIT	Green Finance Industry Taskforce (Monetary Authority of Singapore)
GHG	Greenhouse gases; emissions that include carbon dioxide, methane, and nitrous oxide, among others ²¹³
HKGFA	Hong Kong Green Finance Association
ICAPs	Investor Climate Action Plans
ICE	Intercontinental Exchange (Sustainable Finance and Ecofin Advisors Ltd.)
ICE	Internal Combustion Engine
ICMA	International Capital Market Association
IDFC	International Development Finance Club
IEA	International Energy Agency
IIGCC	Institutional Investors Group on Climate Change
Industry-related bodies	May include civil society and non-governmental organizations providing subject matter expertise, targeted initiatives, and collaborative opportunities among other purposes (e.g., ShareAction, WWF, World Resources Institute, and others).
IPCC	Intergovernmental Panel on Climate Change
IEA	International Energy Agency
ISSB	International Sustainability Standards Board
ITR	Implied Temperature Rise
Key performance indicator (KPI)	A type of performance measurement that evaluates the success of an organization or of a particular activity in which it engages.

²¹² US Department of Energy. [Defining Functional Units for LCA and TEA](#), pg. 3., May 2022.

²¹³ IPCC. [IPCC Updates Methodology for Greenhouse Gas Inventories](#), 2019. The definition excludes water vapor.

LCA	Life-cycle analysis, also known as life cycle assessment, is a methodology for assessing the environmental impact at all stages of the life cycle of a commercial product, process, or service – from cradle to grave. For instance, in the case of a manufactured product, environmental impacts are assessed from raw material extraction and processing (cradle), through to the product's manufacture, distribution and use, to the recycling or final disposal (grave). ²¹⁴
Managed Phaseout (MPO) projects	Targeted efforts to reduce GHG emissions through accelerated retirement of high-emitting physical assets (shortening their operating life). Financial Institutions can finance or enable strategies for managed phaseout of such assets within a defined science-aligned time horizon, thereby limiting the likelihood that such assets will be stranded in a low-carbon future. ²¹⁵ These projects require appropriate scrutiny and governance to ensure that emissions reduction occurs as planned.
MDBs	Joint Climate Finance Tracking Group of multilateral development banks
METI	Ministry of Economy, Trade and Industry (Japan)
MPP	Mission Possible Partnership
M t	M t is Millions of tonnes
MWh	Megawatt-hour (1,000 kilowatts of electricity generated per hour), a unit of electricity generation or consumption.
Nature-based solutions	Actions to protect, sustainably manage, and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits. ²¹⁶ In the context of net-zero transition, nature-based climate solutions are those that use natural solutions to reduce GHG emissions and store carbon. ²¹⁷
NDC	Nationally Determined Contributions
Net zero	A state when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals. Organizations are considered to have reached a state of net zero when they reduce their GHG emissions following science-based pathways, with any remaining GHG emissions attributable to that organization being fully neutralized by like-for-like removals exclusively claimed by that organization, either within its value chain or through purchase of valid offset credits.

²¹⁴ M.L. Brusseau. [Chapter 32 - Sustainable Development and Other Solutions to Pollution and Global Change, Environmental and Pollution Science \(Third Edition\)](#), March 2019, p. 585-603.

²¹⁵ IPCC, Working Group III. [Climate Change 2022: Mitigation of Climate Change: Summary for Policymakers](#), 2022. cites the “combined global discounted value of the unburned fossil fuels and stranded fossil fuel infrastructure has been projected to be around 1-4 trillion dollars from 2015 to 2050 to limit global warming to approximately 2 degrees C, and it will be higher if global warming is limited to approximately 1.5 degrees C.” p. 32.

²¹⁶ IUCN. [Guidance for using the IUCN Global Standard for Nature-based Solutions](#), 2020.

²¹⁷ Adapted from The Nature Conservancy.

Net-zero transition plan (NZTP)	A set of goals, actions, and accountability mechanisms to align an organization's business activities with a pathway to net-zero GHG emissions that delivers real-economy emissions reduction in line with achieving global net zero. For GFANZ sector-specific alliance members, a transition plan should be consistent with achieving net zero by 2050, at the latest, in line with commitments and global efforts to limit warming to 1.5 degrees C, above pre-industrial levels, with low or no overshoot. ^{218,219,220}
NZAOA	UN-convened Net-Zero Asset Owner Alliance
OECD	Organization for Economic Co-operation and Development
Operating life	The period of time during which an asset is operationally used.
Orderly transition	A net-zero transition in which both private sector action and public policy changes are early and ambitious, thereby limiting economic disruption related to the transition (e.g., mismatch between renewable energy supply and energy demand). In an orderly transition, both physical climate risks and transition risks are minimized relative to disorderly transitions or scenarios where planned emissions reductions are not achieved.
PACTA	Paris Agreement Capital Transition Assessment
Paris Agreement	Also known as the Paris Accords or the Paris Climate Accords; refers to an international treaty on climate change adopted in 2015. It covers climate change mitigation, adaptation, and finance.
Pathway	A goal-oriented scenario or combination of scenarios answering the question: "What needs to happen?" to accomplish a specific objective (e.g., what are the steps needed to reach net zero by 2050, limit global warming to 1.5 degrees C, with low or no overshoot?). ²²¹
PCAF	Partnership for Carbon Accounting Financials
Physical intensity metric	Measurement of GHG impact per unit of physical activity.
Portfolio alignment metric (PAM)	A metric that measures the alignment of a portfolio with a selected benchmark scenario.
PRI	Principles for Responsible Investment
Real economy	This refers to economic activity outside of the financial sector.
SBTi	Science Based Targets initiative
Scenario	Projections of what can happen by creating plausible, coherent, and internally consistent descriptions of possible climate change futures. Scenarios are not predictions of the future. ²²²

²¹⁸ Pathways giving at least 50% probability based on current knowledge of limiting global warming to below 1.5 degrees C are classified as "no overshoot," while those limiting warming to below 1.6 degrees C and returning to 1.5 degrees C by 2100 are classified as "1.5 degrees C limited overshoot."

²¹⁹ These requirements reflect sector-specific alliance member commitments.

²²⁰ Through their net-zero alliances, alliance members have all committed to setting an interim target for 2030 or sooner.

²²¹ Definition taken from [Guidance on Use of Sectoral Pathways for Financial Institutions](#).

²²² Definition taken from [Guidance on Use of Sectoral Pathways for Financial Institutions](#).

Scope 1 emissions	Direct emissions from owned or controlled sources.
Scope 2 emissions	Indirect emissions from the generation of purchased energy.
Scope 3 emissions	<p>All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.</p> <p>Scope 3 financed emissions consistent with the net-zero, sector-specific alliance commitments include those emissions associated with a financial institution's investment, lending, and underwriting portfolios, or from clients of investment consultants or financial service providers. In contrast, Scope 2 emissions from a financial institution's own operations pertain to business travel, supply chain, etc.</p> <p>Note that this consultation uses "financed emissions" and "portfolio emissions" interchangeably.</p>
SFAC	Sustainable Finance Action Council (Canada)
SMI	Sustainable Markets Initiative
STEPS	States Policies Scenarios from the IEA
Sustainability-linked loan (SLL)	Any types of loan instruments and/or contingent facilities (such as bonding lines, guarantee lines or letters of credit) that incentivize the borrower's achievement of ambitious, predetermined sustainability performance objectives. ²²³
Transition Finance	Investment, financing, insurance, and related products and services that are necessary to support an orderly, real-economy transition to net zero as described by the four key financing strategies, which finance or enable: 1) entities and activities that develop and scale climate solutions; 2) entities that are already aligned to a 1.5 degrees C pathway; 3) entities committed to transitioning in line with 1.5 degrees C-aligned pathways; or 4) the accelerated managed phaseout of high-emitting physical assets.
TPI	Transition Pathway Initiative
TPT	Transition Plan Taskforce (UK)
WBA	World Benchmarking Alliance
WBCSD	World Business Council for Sustainable Development

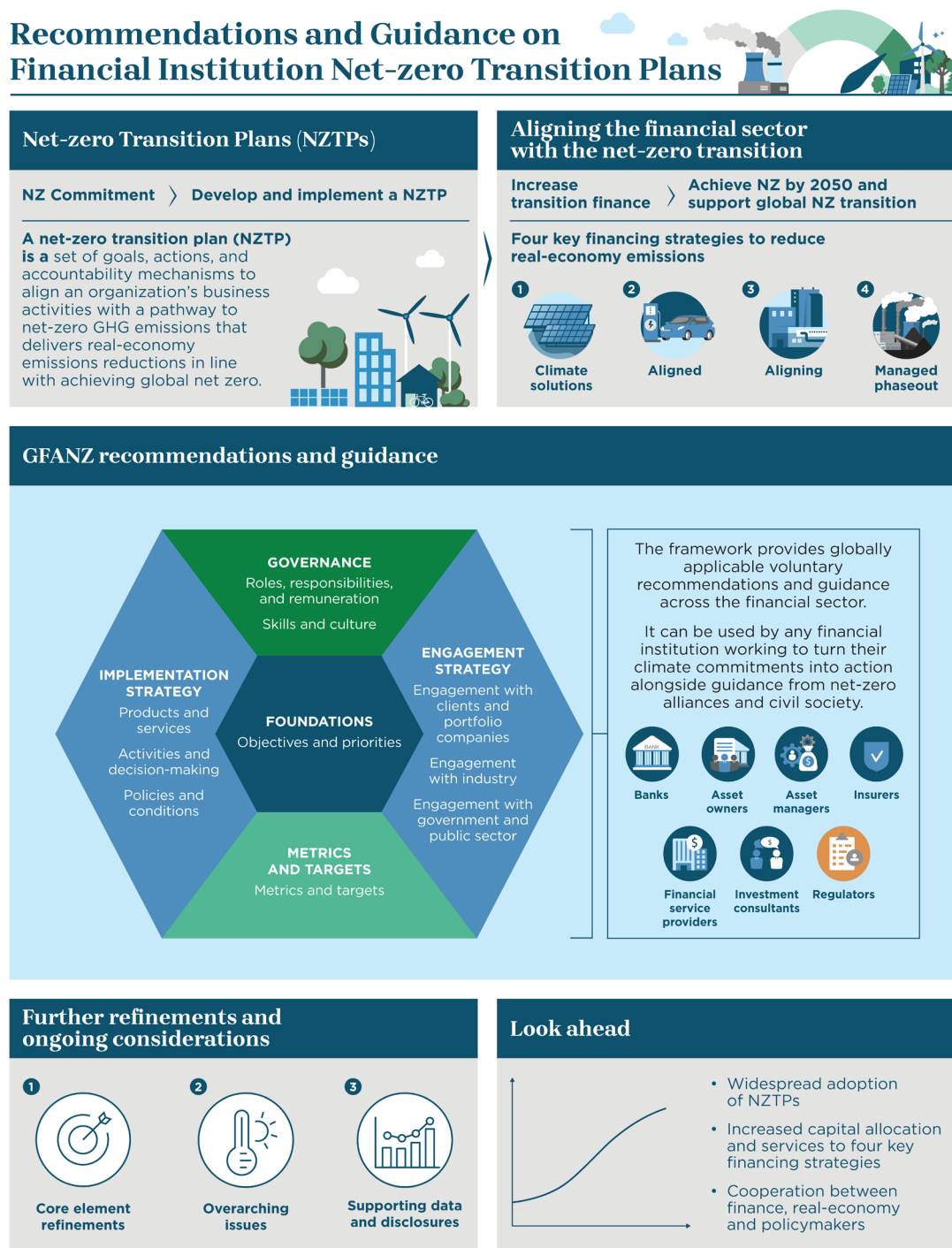
²²³ Loan Market Association. [Sustainability Linked Loan Principles](#), March 2019.

APPENDIX B

GFANZ Net-zero Transition Plan framework

Refer to the GFANZ [Recommendations and Guidance on Financial Institution Net-zero Transition Plans](#) for details.

Appendix Figure 1. Recommendations and guidance on financial institution Net-zero Transition Plans



APPENDIX C

Select transition finance frameworks

The concepts in Part I of this Note builds on the original GFANZ definitions of the four key financing strategies that were developed based on prevailing frameworks at the time of writing last year and draws on a range of publicly available frameworks and guidance issued by sector-specific alliances and other industry bodies. The GFANZ Secretariat considers the GFANZ definition of Transition Finance and the Attributes of the four key transition financing strategies to be consistent and supportive of the principles laid out by the G20 Sustainable Finance Working Group.

Financial institutions are encouraged to familiarize themselves with all relevant reports in their assessment process, including regional-specific regulatory frameworks, standards, and taxonomies, where appropriate.

The organizations listed in the tables below were selected to illustrate the broad range of sources of available alliance and industry body frameworks and guidance. The list is not comprehensive of all frameworks and reports that may be relevant and/or that were considered in Part I of this Note.

Research focused on frameworks and guidance that include similar Transition Finance types and/or maturity scales. The table below summarizes select frameworks and how relevant categories may be encompassed within the scope of and/or where select frameworks have referenced the GFANZ four key financing strategies explicitly.

Each of these frameworks were developed for a range of applications, scope, audiences, and use cases that may differ from one another and from this Note. Please refer to the listed organizations and their frameworks for specific guidance and further details.

- The table should not be interpreted as a comprehensive mapping of all listed frameworks with one another.
- The categories presented in this table should not be misconstrued as implying equivalence or substitutability between the listed frameworks and their categories, nor should it be interpreted that the guidance within the listed frameworks can replace one another, or directly correlate to the guidance provided in this Note.

It is worth noting that regional and national taxonomies (e.g., EU Taxonomy, South African Green Finance Taxonomy) may be helpful in informing Climate Solutions at the sector and/or activity-level, and some taxonomies may include guidance on transitional activities and outline areas for phaseout (e.g., taxonomies with a 'traffic light' system such as the Singapore-Asia Taxonomy and the Bank of Thailand Taxonomy; taxonomies and taxonomical frameworks with decision flows such as the Australian Sustainable Finance Institute Taxonomy and the Canada Sustainable Finance Action Council Taxonomy Roadmap Report) and therefore may help inform Aligned/Aligning and Managed Phaseout exposures, respectfully.

Review was also conducted on frameworks and guidance that specify credibility indicators, attributes, and other principles and scoring criteria (to assess qualification of entities, assets, projects as transition finance).

Appendix Table 1. High-level mapping of select frameworks (listed in alphabetical order)

GFANZ FOUR KEY TRANSITION FINANCING STRATEGIES		CLIMATE SOLUTIONS	ALIGNED	ALIGNING	MANAGED PHASEOUT
Climate Bonds Initiative (CBI)	<p>Climate Bonds Initiative (CBI) is an international organization that promotes investment in projects and assets, activities, and entities necessary in the transition to net zero. CBI focuses on mobilizing the bond market for climate change solutions by driving the quality of issuance through the development of science-based green definitions in line with the Paris Agreement. CBI administers the Climate Bonds Standard, a global certification scheme for sustainable debt and corporates.</p> <p>Sources: Transition Finance for Transforming Companies; Financing Credible Transitions; Checklist for Entity Certification</p>	Near Zero (partial alignment) ²²⁴	Pathway to Zero		Interim ²²⁵ Stranded ²²⁶
Investor Climate Action Plans (ICAPs) Expectations Ladder	<p>The Investor Climate Action Plans Expectations Ladder, developed by the Investor Agenda, helps investors act on climate by providing a single, comprehensive framework for self-assessment and transition planning, which draws on existing initiatives and resources. The Expectations Ladder is inclusive and designed for all investors, regardless of where they are on their climate change journey. Because of this, the Expectations Ladder sets out a summary of encouraged actions over four tiers, from those beginning to think about climate (Tier 4) to the net zero standard-setters (Tier 1). This also allows investors to assess and report progress up the Ladder, accelerating their action in support of a net zero economy by 2050 or sooner. The Expectations Ladder references the GFANZ four key financing strategies.</p> <p>Sources: ICAPs Expectations Ladder</p>	Climate Solutions	Aligned	Aligning	Managed Phaseout
The Net Zero Investment Framework (NZIF)	<p>The Net Zero Investment Framework 1.0 and supplementary guidance defines methodologies and approaches for asset managers and asset owners to align portfolios to the goals of the Paris Agreement and maximize the contribution they can make to achieving net zero global emissions by 2050. 118 investors representing \$34 trillion in assets engaged in the development of the Net Zero Investment Framework between 2019-2021. Its development was led by the Institutional Investors Group on Climate Change (IIGCC) with the support of investor networks globally, Asia Investor Group on Climate Change (AIGCC), Ceres, Investor Group on Climate Change (IGCC).</p> <p>Sources: Net Zero Investment Framework: Implementation Guide and guidance for private equity and infrastructure; IIGCC's Supplementary Guidance on Target Setting; Investing in climate solutions: listed equity and corporate fixed income; Investor Expectations of Corporate Transition Plans; Net Zero Standards for Oil & Gas; Diversified Mining; Banks</p>	Climate Solutions (Portfolio & asset class level recommendations)	Achieving Net Zero Aligned	Aligning towards a net zero pathway Committed to Aligning	Fossil Fuel Phase Out recommendations plus sector standards
Science Based Targets Initiative (SBTi)	<p>The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). The SBTi helps companies establish science-based targets to reduce GHG emissions and transition to net-zero by defining and promoting best practices in emissions reductions and net-zero target setting in line with climate science. The SBTi is in the process of developing a Financial Institutions Net Zero (FINZ) Standard. The goal of the FINZ Standard will be to provide criteria and guidance that enable financial institutions to establish robust near-term and long-term targets consistent with achieving net zero emissions by 2050.</p> <p>Sources: SBTi Financial Institution Net Zero Standard</p>	Net Zero Aligned/1.5 Aligned ²²⁷	1.5 Aligned Performance (medium-term) Net Zero Aligned (long-term)	1.5 Aligned Ambition (short-term) 1.5 Aligned Performance (medium-term)	Fossil Fuel Phaseout

²²⁴ Near Zero as defined by CBI represents only those entities and assets that are at very low or near zero emissions. This would fall within the scope, as a sub-set, of GFANZ's Climate Solutions.

²²⁵ Interim refers to assets that are necessary in the interim in the absence of long-term solutions but will need to be phased out before 2050.

²²⁶ Definition of Stranded includes assets that should be phased out and is incompatible with net-zero.

²²⁷ Where the entity/activity is also a Climate Solution.

GFANZ FOUR KEY TRANSITION FINANCING STRATEGIES		CLIMATE SOLUTIONS	ALIGNED	ALIGNING	MANAGED PHASEOUT
Sustainable Markets Initiative Asset Manager and Asset Owner Task Force	<p>The Sustainable Markets Initiative (SMI) was launched in 2020 at the World Economic Forum Annual Meeting in Davos by King Charles III, then Prince of Wales. Several of the world's largest Asset Managers and Asset Owners have come together as members of the SMI Asset Manager and Asset Owner Task Force (AMAO) to work on actionable plans to help accelerate the world's transition to a sustainable future. The AMAO Task Force designed the Transition Categorisation Framework as a tool to help allocators of capital navigate the different types of transitioning assets. The purpose of the tool is to navigate the space between green assets and everything else, with the aim of increasing flows of investment into companies that will make a meaningful contribution to decarbonising the real economy, despite current high emissions.</p> <p>Sources: Sustainable Markets Initiative Asset Manager and Asset Owner Task Force Transition Categorization Framework²²⁸</p>	Transitional Enabler	Transitioning Mitigating	Committed to Transition	Interim or Phaseout
Initiative Climat International (ICI) and Sustainable Markets Initiative Private Equity Taskforce – Private Markets Decarbonisation Roadmap (PMDR)	<p>The Private Markets Decarbonisation Roadmap was developed by the Initiative Climat International and the SMI Private Equity Taskforce as a way for Private Markets to communicate about their efforts on decarbonization. The PMDR was developed with the participation and insight from 250+ organizations across GPs, LPs and sustainability bodies.</p> <p>Sources: Private Markets Decarbonisation Roadmap</p>	Decarbonization Enablers (a subset of Climate Solutions)	Aligned	Aligning	No current pathway to Align ²²⁹
Transition Plan Taskforce (TPT)	<p>The Transition Plan Taskforce (TPT) was launched by HM Treasury in April 2022 with a mandate to bring together leaders from industry, academia, and regulators to develop best practices for transition plan disclosures for finance and the real economy. The TPT Framework is designed to complement, and build on, the final climate-related disclosure standard (IFRS S2) issued by the ISSB. The TPT Framework also draws on GFANZ's framework and guidance for credible, comprehensive and comparable net zero transition planning and uses the same core components and structure.</p> <p>Sources: TPT Disclosure Framework; TPT Transition Planning Cycle</p>	Climate Solutions	Aligned	Aligning	Managed Phaseout
U.S. Department of the Treasury – Principles for Net-Zero Financing & Investment	<p>The U.S. Department of the Treasury released its Principles for Net-Zero Financing & Investment in September 2023 to underscore the importance and value of financial institutions' net-zero commitments, to promote consistency and credibility in financial institutions' approaches to these commitments, and to highlight and encourage greater adoption of emerging best practices pertaining to these commitments.</p> <p>Sources: Principles for Net-Zero Financing & Investment</p>	Climate Solutions	Aligned ²³⁰	Aligning ²³¹	Managed Phaseout

Note: this table is the same as shown in section [Select existing frameworks](#) of the Note.

²²⁸ The SMI framework includes a category of Aiming to Transition. This category is for companies that have no net-zero pathway at present but have a corporate commitment to a transition plan. This should not be bucketed with a company that is a high emitter but also has a feasible transition plan.

²²⁹ PMDR's No current pathway to Align classification refers to Portfolio Companies (PortCos) with no pathway to align to the transition using existing technology. A PortCo can be classified as such if greater than 50% of its revenue is generated using high-emitting assets and it is not feasible to decarbonize through redevelopment, retrofitting, or replacement (including Managed Phaseout).

²³⁰ Per reference to "aligned" and "aligning" under Principle 2 – Practice 1 – Transition finance.

²³¹ Per reference to "aligned" and "aligning" under Principle 2 – Practice 1 – Transition finance.

Appendix Table 2. Other select transition finance frameworks

FRAMEWORK/REPORT	
ACT	Generic Methodology and Sectoral Methodologies
ASEAN Capital Markets Forum	ASEAN Transition Finance Guidance
ATF	Asia Transition Finance Guidelines
EU Commission	Commission Recommendation (EU) 2023/1425 of 27 June 2023 on facilitating finance for the transition to a sustainable economy
G20	2022 G20 Sustainable Finance Report
GFIT	Cultivating Singapore's Sustainable Finance Ecosystem to Support Asia's Transition to Net-Zero and Fostering Green Finance Solutions White Paper
HKGFA	Navigating Climate Transition Finance (November 2020)
ICMA	Climate Transition Finance Handbook (Dec 2020) and Update June 2023
IPSF	Transition Finance Report (November 2022)
MDBs and IDFC	Common Principles for Climate Mitigation Finance Tracking
METI	Basic Guidelines on Climate Transition Finance
NZAOA	NZAOA Target-Setting Protocol Third Edition
NZBA	NZBA Transition Finance Guide
OECD	Guidance on Transition Finance
SFAC	Taxonomy Roadmap Report
SMI	SMI Energy Transition Task Force Framework for transitioning companies
TPI	TPI's methodology report: Management Quality and Carbon Performance
WBA	Governance and Climate Insights Report
WBCSD	Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net Zero

APPENDIX D

GFANZ Sectoral pathways considerations

The following excerpts highlight the main conclusions on the use of sectoral pathways. Please refer to the GFANZ [Guidance on Use of Sectoral Pathways for Financial Institutions](#) for details.

Appendix Table 3. Pathway framework: scope and ambition²³²

1. SCOPE AND AMBITION OF THE PATHWAY	
Scope	<ul style="list-style-type: none"> • What sectors and sub-sectors does the pathway cover? • How does the pathway consider system interactions (e.g., energy systems and land-based systems)? • What sector system boundaries are considered? • What scopes are considered and how is each scope defined? • What is the timeframe and interval of reported data? • What geographies and regions does the pathway cover? • What GHGs does the pathway consider (e.g., CO₂ or all GHGs)?
Net-zero and temperature alignment	<ul style="list-style-type: none"> • What is the total emissions pathway to 2050 (both in terms of absolute and intensity)? • What is the global carbon budget from 2020 to net zero? • What is the temperature alignment (degrees C), level of overshoot, and likelihood? • What is the sector share of the global carbon budget? What is the methodology/ assumptions to assign carbon budget to each sector? • What are the emissions per scopes 1, 2, and 3?
Reliance on carbon capture and removal	<ul style="list-style-type: none"> • What technologies does the pathway consider for removals and carbon capture? • To what extent does the pathway rely on removals and carbon capture? • What is the sector share of global carbon captured and removed?

Appendix Table 4. Pathway framework: underlying assumptions of pathways²³³

2. UNDERLYING ASSUMPTIONS TO ACHIEVE THE PATHWAY	
Socioeconomic/ policy	<ul style="list-style-type: none"> • What are the key socioeconomic assumptions (e.g., GDP and population growth)? • What are the assumptions for carbon price development from 2020 to 2050? • What are the policy requirements to achieve the pathway?
Energy demand and supply	<ul style="list-style-type: none"> • What is the assumed energy demand? • What is the rate of energy-intensity improvements? • What is the assumed mix of energy supply through time (fossil fuels, renewables, nuclear)? • What are the assumptions regarding the adoption of hydrogen and biofuels over time?
Technology	<ul style="list-style-type: none"> • What are the overall technology development assumptions? • What is the assumed timeline for technologies to be developed/ready for use? • What are the assumptions around the lifetime of existing high-emitting assets, and asset retirement timeframes given the development of greener technologies?
Production/ demand	<ul style="list-style-type: none"> • What is the industry's assumed production/demand volume (e.g., tonnes of steel, passengers/km)?
Investments	<ul style="list-style-type: none"> • What are the assumptions on investment needed to achieve the pathway? • How are current infrastructure, assets, and their lifetimes considered? • How are the financial flows distributed during the time horizon?

²³² GFANZ. [Guidance on Use of Sectoral Pathways for Financial Institutions](#), 2022.

²³³ GFANZ. [Guidance on Use of Sectoral Pathways for Financial Institutions](#), 2022.

Appendix Table 5. Pathway framework: credibility and feasibility of the pathway²³⁴
3. CREDIBILITY AND FEASIBILITY OF THE PATHWAY

- What was the pathway created for?
- Has the pathway been validated by the scientific community for credibility around temperature alignment?
- Have the model and scenarios been peer reviewed? What are the current use cases of the scenarios (e.g., alignment, risk)?
- Has the pathway been submitted for international model intercomparison exercises (e.g., IPCC database)?
- Has the pathway been evaluated by industry and other key stakeholders (e.g., regulators) to assess the commercial feasibility?
- How are just transition and fair share considered in regional/country-specific pathways?

Appendix Table 6. Current limitations for pathway users²³⁵

LIMITATIONS	EXAMPLES	IMPLICATIONS FOR FIS
1. Access to data	No open access to underlying data and models for users restricting the information to specific publications with limited data (e.g., time intervals only available on five or ten-year periods)	Multiple sources required to extract information (e.g., methodology documents, spreadsheets, online portals), and users required to make assumptions to fill in information gaps (e.g., interpolate data between time periods, regional granularity from global models)
2. Standardization of scope, terminology, and formatting	Pathways cover different scopes (e.g., CO ₂ vs. GHG emissions) and also provide different definitions for key concepts like carbon price and investments	Difficult to make like-for-like comparisons across pathways produced by different providers without adjusting/standardizing key concepts into common metrics
3. Geographical granularity	Limited number of pathways with output variables available at regional/country level	Varying level of applicability of pathway to specific institutions depending on portfolio and geographical footprint (e.g., regional financial institutions may need to use assumptions to regionalize pathways)
4. Sub-sector granularity	Different level of sector-specific granularity available among pathways and varying level of detail/granularity of data available among sectors	Difficulty for financial institutions to apply consistent pathways from the same provider to all firms in a portfolio, leading to the risk of inconsistencies among sector-specific and cross-sector pathways
5. Cross-stakeholder credibility/feasibility assessment	Limited disclosure on how validation processes, including experts from industry, policy, and finance, have been involved on assessing pathway feasibility	Uncertainty on the level of credibility (i.e., temperature alignment) and commercial feasibility of pathways from different stakeholders' perspectives (e.g., scientific community vs. industry vs. financial institutions)

²³⁴ GFANZ. [Guidance on Use of Sectoral Pathways for Financial Institutions](#), 2022.

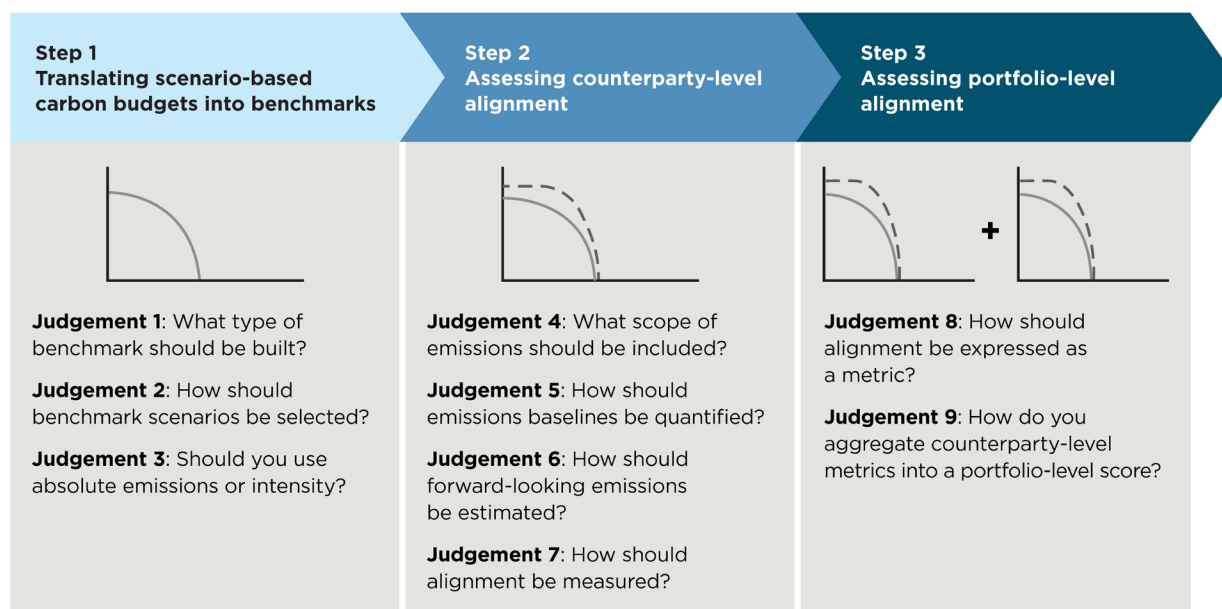
²³⁵ GFANZ. [Guidance on Use of Sectoral Pathways for Financial Institutions](#), 2022.

APPENDIX E

GFANZ Portfolio alignment measurement key design judgements

The following excerpts highlight the main conclusions on the measurement of portfolio alignment that may be relevant in the implementation of the decarbonization methods proposed in this Note. Please refer to the GFANZ [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#) for details and for any page and section references below.

Appendix Figure 2. Nine key design judgements summary²³⁶



When measuring alignment, practitioners can follow nine Key Design Judgements across three steps. Step 1 is about building the benchmark; step 2 is about comparing company-level alignment against this benchmark, and step 3 is about aggregating alignment at the portfolio level.

Appendix Table 7. Nine key design judgements guidance²³⁷

KEY DESIGN JUDGEMENT	GFANZ PORTFOLIO ALIGNMENT MEASUREMENT WORKSTREAM GUIDANCE
1. What type of benchmark should be built?	<ul style="list-style-type: none"> Practitioners should use single-scenario benchmark approaches. For homogenous sectors, practitioners should apply a fair-share carbon budget approach using physical emissions intensity and absolute emissions, or the convergence benchmark. For heterogenous sectors, practitioners should apply the fair-share carbon budget approach using economic emissions intensity and absolute emissions. Where economic intensity is not preferred, a rate-of-reduction benchmark can be used.

²³⁶ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

²³⁷ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

KEY DESIGN JUDGEMENT	GFANZ PORTFOLIO ALIGNMENT MEASUREMENT WORKSTREAM GUIDANCE
2. How should benchmark scenarios be selected?	<ul style="list-style-type: none"> When selecting a 1.5 degrees C-aligned benchmark scenario, practitioners are encouraged to use the GFANZ guidance on use of sectoral pathways for financial institutions and prioritize benchmark scenarios with higher regional and sectoral granularity.
3. Should absolute emissions, production or emissions intensity units be used?	<ul style="list-style-type: none"> The use of physical intensities is preferred to economic intensities for companies in homogenous sectors. For most sectors, the fair-share carbon budget approach should be used. This approach translates physical or economic emissions intensities into absolute emissions (following Judgment 1). For the oil and gas sector, practitioners should use multiple metrics in combination, to reflect different decarbonization levers and their relevant benchmarks.
4. What scope of emissions should be included?	<ul style="list-style-type: none"> Scope 3 emissions should, at a minimum, be included in portfolio alignment measurement if they exceed 40% of a company's total emissions and if the absolute magnitude of the company's Scope 3 emissions is large. Sector-level category guidance detailed in Section 3.4²³⁸ should be considered. Given the scarcity of Scope 3 disclosures, the use of Scope 3 estimates might be useful, especially when bottom-up production and activity data are available.
5. How should emissions baselines be quantified?	<ul style="list-style-type: none"> Practitioners should consider the PCAF standard, which prioritizes reported over estimated emissions, for at least Scope 1 and Scope 2. Estimation methods based on activity levels as close as possible to the emissions drivers should be preferred over top-down methods, especially for Scope 3 emissions.
6. How should forward looking emissions be estimated?	<ul style="list-style-type: none"> For companies that have set emissions reduction targets, practitioners should calculate a company's alignment based on a credibility-weighted combination of two distinct emission forecasts: 1) a forward-looking approach based on stated emissions reduction targets, and 2) a backward-looking approach based on stated historical emissions. Practitioners should perform a credibility assessment to reflect the likelihood of a company achieving its stated emissions reduction targets. For companies without emissions reduction targets, practitioners should implement a "waterfall" approach of four methods and a lower bound score on the alignment metric, detailed in Section 3.6²³⁹.
7. How should alignment be measured?	<ul style="list-style-type: none"> Practitioners should calculate alignment on a cumulative-emissions basis to reflect the remaining carbon budget. Practitioners should compute alignment over short- and medium-term time horizons, which could be supplemented by longer-term time horizons. When computing alignment using an ITR metric, practitioners should consider the technical guidance in Section 3.7 and Appendix O.²⁴⁰
8. How should alignment be expressed as a metric?	<ul style="list-style-type: none"> When selecting a portfolio alignment metric, practitioners should consider its suitability for the specific use case(s). For technical guidance on the calculation approaches for ITR metrics, see Appendix O.²⁴¹
9. How do you aggregate counterparty-level metrics into a portfolio-level score?	<ul style="list-style-type: none"> An aggregated-budget approach should be used as this allows financial institutions to compute the overall carbon budget overshoot or undershoot at the portfolio-level. When calculating an ITR metric using an aggregated budget approach, practitioners should convert the total carbon budget overshoot or undershoot into an ITR using an approach consistent with the methodology selected in Judgements 7 and 8.

²³⁸ Refers to original report: GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

²³⁹ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

²⁴⁰ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

²⁴¹ GFANZ. [Measuring Portfolio Alignment: Driving Enhancement, Convergence, and Adoption](#), November 2022.

APPENDIX F

Select decarbonization contribution methodologies and frameworks

The potential approaches and concepts outlined in Part II of this Note reference a range of methodologies issued by industry bodies, standard setters, and financial institutions. As the field continues to evolve, it is expected that more methodologies and frameworks will be developed over time. The organizations and methodologies listed in the table below have been selected for the purpose of formulating the preliminary considerations proposed in this Note. This list is not exhaustive of all references or entities that may be relevant to Part II of this consultation going forward.

Appendix Table 8. Select methodologies and frameworks

	METHODOLOGY / FRAMEWORK	CAPITAL FLOW	FINANCED EMISSIONS	EMISSION REDUCTION POTENTIAL	AVOIDED EMISSIONS
CDP	Emerging Climate Technology Framework				
CPPIB	The Future of Climate Change Transition Reporting				
GIC-Schroder	A Framework for Avoided Emissions Analysis: Uncovering Climate Opportunities Not Captured by Conventional Metrics				
Goldman Sachs	Carbonomics: Affordability, Security and Innovation ; Carbonomics: Introducing the GS Net Zero Carbon Models and Sector Frameworks ; Carbonomics: The third American energy revolution ; and GS Sustain: Avoided Emissions – How quantifying Avoided Emissions can broaden the decarbonization investment universe				
ICE	From Climate Risk to Opportunity: The Concept of Avoided Emissions				
Japan METI	Addressing the Challenges of Financed Emissions				
Mission Innovation	Towards >60 Gigatonnes of Climate Innovations, Module 2				
PCAF	The Global GHG Accounting and Reporting Standard for the Financial Industry				
Project Frame	Pre-investment Considerations: Diving Deeper into Assessing Future Greenhouse Gas Impact				
Systemiq/ETC	Financing the Transition: How to Make the Money Flow for a Net-Zero Economy				
WBCSD	Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net Zero				

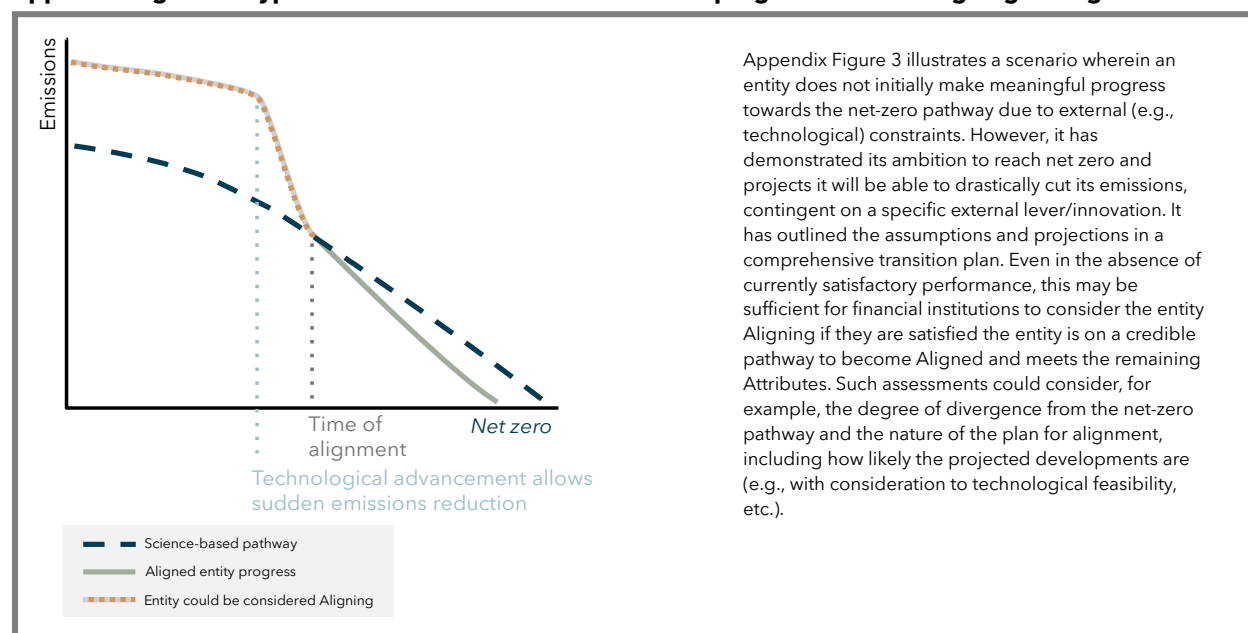
APPENDIX G

Hypothetical illustrations of Aligned and Aligning performance

The figures below set out hypothetical examples illustrating potential alignment pathways for entities in the reference cases and for cases where further assessment may be required. As such, the figures do not attempt to capture the intricacies of carbon budgets, regional or sector specific considerations. Note that these illustrations show idealized scenarios where full data is available to represent an entity's progress towards a clear reference pathway to provide an intuitive understanding of the performance attribute and some potential challenges. Financial institutions will be limited to a point-in-time view of entities' performance and should use best efforts.

Although Aligned and Aligning represent consecutive stages on a continuum, in many cases the progression from Aligning to Aligned will not be linear. [Appendix Figure 3](#) illustrates a hypothetical case where the progression happens more abruptly.

Appendix Figure 3. Hypothetical illustrations of a non-linear progression from Aligning to Aligned

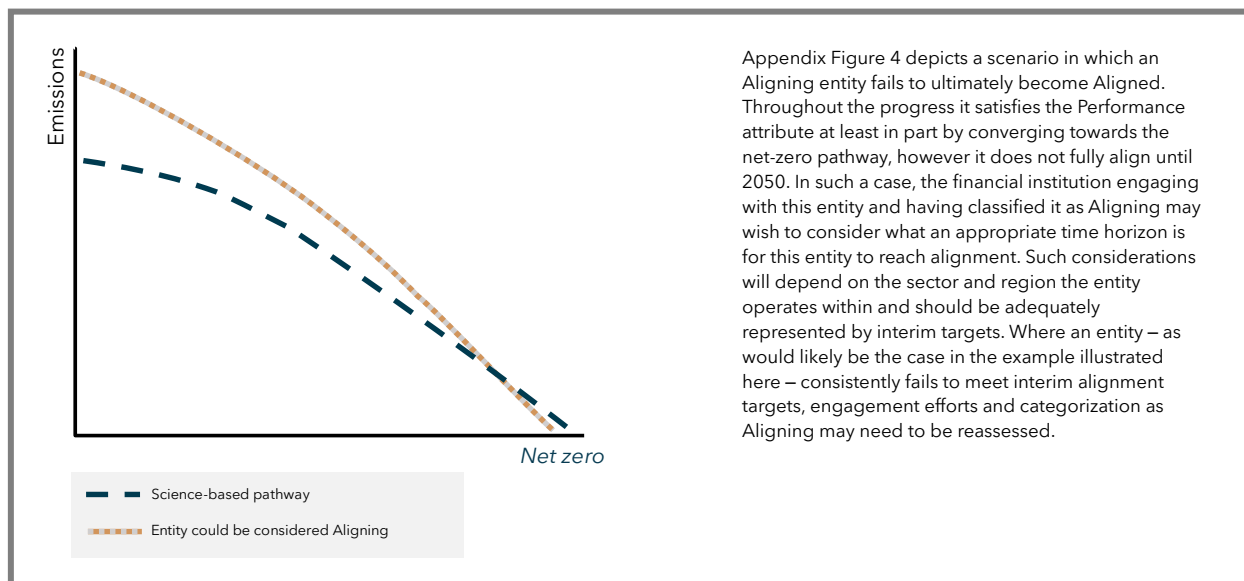


Financial institutions may also want to consider what would be a reasonable length of time for a given Aligning entity to progress into the Aligned category and focus its engagement with the entity accordingly. Where Aligning entities fail to make progress towards pathway alignment, engagement efforts may need to be reassessed (see [Appendix Figure 4](#)).

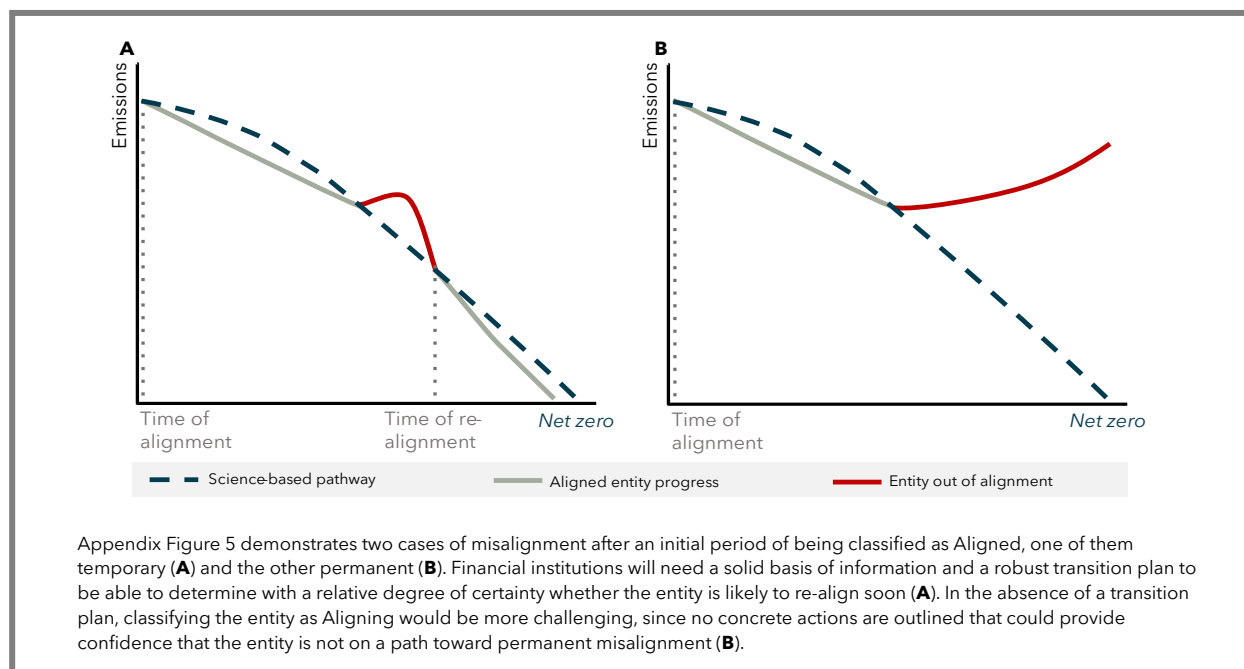
There may also be situations where previously Aligned entities fall out of alignment and need to be reassessed to determine whether they still qualify as Aligning and can be supported back into alignment. Where performance of an Aligned entity deviates from its established pathway, the entity may fall out of full alignment and discretionary assessment by the financial institution will be necessary to determine if the entity should be considered Aligning (see [Appendix Figure 5](#)). A net-zero transition plan may offer the financial institution sufficient assurance that the levers are in place to once again reach alignment in the near future, allowing the entity to be considered as

Aligning despite a transient period of misalignment, or even remain as Aligned if the transition plan and historical performance are robust and consistent enough to justify the assessment. Careful assessment and close engagement are strongly encouraged in such cases.

Appendix Figure 4. Hypothetical illustration of an entity that fails to progress into alignment



Appendix Figure 5. Hypothetical illustration of temporary and permanent misalignment of previously Aligned entities



APPENDIX H

High-emitting sectors financing requirements

Appendix Table 9. High-emitting sectors financing requirements

INDUSTRY	INVESTMENT NEED BY 2050 [US\$]
Shipping	1.2 trillion (ETC) 2020-2050
Aviation	2.1 trillion (ETC) 2020-2050
Steel	1.4 trillion (IEA) 2020-2050
Cement	480 billion (WEF)
Aluminum	1 trillion (MPP)

Shipping

A global annual investment of US\$40 billion is needed to decarbonize shipping between 2020 and 2050.²⁴²

Aviation

A global annual investment of US\$70 billion is needed to decarbonize aviation between 2020 and 2050.²⁴³

Steel

In the Sustainable Development Scenario US\$1,390 billion of investment in core process equipment is required cumulatively.²⁴⁴

Cement

The global cement industry will need to invest US\$16 billion annually on top of business-as-usual investments to transition to net zero.²⁴⁵

Aluminum

Cumulative investment of approximately US\$1 trillion across the primary production value chain will be needed to deliver a net-zero sector, or a 1.5°C pathway. The majority of this investment will be needed in power supply and smelters.²⁴⁶

²⁴² ETC. [Transport: investment need to 2050](#).

²⁴³ ETC. [Transport: investment need to 2050](#).

²⁴⁴ IEA. [Iron and Steel Technology Roadmap: Towards more sustainable steelmaking](#), 2020, p. 110.

²⁴⁵ WEF. [The Net-Zero Industry Tracker: Cement Industry](#), 2022.

²⁴⁶ MPP. [Making Net-Zero Aluminium Possible](#), 2023, p. 15.

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